

INVENTORIING AND MONITORING  
PROTOCOLS OF VERTEBRATES IN  
NATIONAL PARK AREAS OF THE EASTERN  
UNITED STATES: THE BIBLIOGRAPHIC REPORT

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## **Executive Summary**

We conducted an extensive search of the scientific literature for journal articles, books, technical reports, and theses regarding inventorying and monitoring protocols for terrestrial vertebrate species (excluding white-tailed deer [*Odocoileus virginianus*] and black bear [*Ursus americanus*] ). This search was part of a long-term project (1992-1996) in four national park areas in the eastern United States: Gettysburg National Military Park, Eisenhower National Historic Site, Hopewell Furnace National Historic Site, and Valley Forge National Historical Park. We located 908 bibliographic citations and entered these into the computer bibliographic database called *Pro-Cite*. Citations in *Pro-Cite* may be searched by author, article title, journal title, and year. The citation bibliography also may be searched by key terms that index each citation in five categories: 1) taxon, 2) season, 3) habitat, 4) level of information, and 5) protocol.

Of the 908 citations, 503 (55%) were studies on birds. Studies of passerines, upland groundbirds, and raptors were cited the most, with 100, 86, and 82 citations, respectively. Studies of mammals totaled 244 (27%), with over half of these involving Rodentia. Relatively few studies of reptiles (9%) and amphibians (6%) were found. Over half (56%) of the 297 studies that

specified habitat were conducted in forest; other habitats were not well-represented.

We found 48 different protocols referenced in the citation bibliography. As with the number of citations for each taxonomic group, most protocols in the bibliography were associated with surveys of birds (60%) and mammals (56%), and very few gave protocols for reptiles (33%) and amphibians (31%). The largest number of studies (169) citing protocols involved trapping, such as live-traps and pitfall traps.

We developed a list of all protocols that were cited for each class of vertebrates, based on information provided by the citations. This list included information on taxa, habitats, and seasons for which each protocol was appropriate; information provided by the protocol (e.g., relative abundance); and cost, labor, materials, and expertise necessary to carry out the protocol. With this information, a resource management specialist could select the most time-, labor-, and cost-effective protocol that provided the desired level of information for taxa and habitats to be studied.

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## Introduction

We initiated a long-term project (1992-1996) that was designed to provide a comprehensive review of vertebrates (amphibians, reptiles, birds, and mammals) in four national park areas in the eastern United States: Gettysburg National Military Park, Eisenhower National Historic Site, Hopewell Furnace National Historic Site, and Valley Forge National Historical Park. Information on presence/absence, relative abundance, and distribution of vertebrates on these public lands are important to National Park Service (NPS) personnel (hereafter referred to as Resource Management Specialists) who are mandated to manage natural resources. As large tracts of public lands, such as national park areas, become more insular with increased habitat fragmentation due to agriculture, urbanization, or other land use, these public lands increasingly will be valuable for the long-term maintenance of faunal diversity and assurance of the functional integrity of landscapes and ecosystems in the eastern United States (Ambrose and Bratton 1990).

In year 1 of this long-term project, we surveyed existing literature on cost-, labor-, and time-effective protocols for inventorying and long-term monitoring of vertebrate fauna in the four national park areas. Although we placed most of our emphasis on birds and mammals, we also included protocols for surveying amphibians and reptiles. These protocols were

organized in a hierachial fashion, depending on specific goals and types of data needed at a given area. We also intended that these hierachial protocols will be tested and applied in the eastern deciduous forest region so that trends in fauna can be monitored on a regional basis.

### **Objectives of the Bibliographic Report**

The objectives specific to this report were to:

- 1) develop a citation bibliography from an extensive search of the scientific literature for inventorying and monitoring protocols for terrestrial vertebrate species occupying national park areas in the eastern United States;
- 2) evaluate each protocol identified in the bibliography to determine taxa, habitats, and seasons for which the protocol is appropriate; and
- 3) determine for each protocol the cost and labor involved and the type of data provided by the protocol.

This report and citation bibliography can be used with the Technical Report NPS/MAR/NRTR-94/058, which is entitled "Inventorying and Monitoring Protocols of Vertebrates in National Park Areas of the Eastern United States: The Faunal Report" (Yahner et al. 1994). When used together, the two reports

synthesize comprehensive information on inventorying and monitoring protocols, and ecological, biological, and legal data for vertebrates in the eastern deciduous forest.

## Methods

### Description of Literature Search

We completed an extensive literature search to identify protocols that previously have been used to survey terrestrial vertebrate species. The scope of this literature search included all scientific research articles, books, and technical reports that describe a protocol to inventory or monitor amphibians, reptiles, birds, or mammals, excluding white-tailed deer (*Odocoileus virginianus*) and black bear (*Ursus americanus*).

We limited the search to taxa or habitats that could be found in the eastern United States. This limitation excluded taxa and habitats not found in the eastern United States, such as greater roadrunners (*Geococcyx californianus*) of western desert habitats. If a species were not found in the eastern U.S. but were similar ecologically to a species that was found in the eastern U.S., such as least chipmunks (*Tamias minimus*), which are closely related to eastern chipmunks (*Tamias striatus*), the citation was included. Similarly, if the habitat type were not found in the eastern U.S. but the general taxonomic group studied were, e.g., scaled quail (*Callipepla squamata*) nesting in desert grasslands, then the citation was included.

Sources of scientific literature for the initial search included: 1) the bibliography of *Inventory and Monitoring of*

*Wildlife Habitat*, edited by Cooperrider et al. (1986), which was a reference book on survey protocols; 2) *The 1982 CRC Handbook of Census Methods for Terrestrial Vertebrates* by Davis (1982); 3) the U.S. Fish and Wildlife Service Reference Service literature database, which was a bibliographic database accessed by key index terms; 4) the National Park Service literature database of research projects completed at the national parks; 5) the publication *Wildlife Review*, which provided a list of all scientific publications, including journal articles, conference proceedings, and masters and doctoral theses, that have been published each quarter; and 6) the National Park Service *Natural Resource Inventory and Monitoring Bibliography*, compiled by Drost and Stohlgren (1993).

These sources of scientific literature provided the author(s), title, year, journal and volume or technical report number, and pages of the cited work. Although much information concerning the protocols used and taxa studied could be obtained solely on the title of the citation, more detailed information from a scientific work may be desired. This could be accomplished by referring to the actual journal article, technical report, conference proceedings, book, or thesis cited.

#### **Description of Pro-Cite**

All of the scientific citations meeting the search conditions were compiled and entered into Pro-Cite. Pro-Cite is

a computer bibliographic database, allowing input and management of bibliographic citations. The program may be loaded and accessed at any IBM-compatible personal computer. This computer database allows a user to input, store, sort, search, or print any or all of a citation bibliography. *Pro-Cite* automatically sorts and stores individual citations alphabetically by author when inserting citations. Citations of all forms (e.g., theses, books, conference proceedings) may be entered into *Pro-Cite*, and all necessary information about the scientific work may be included in the citation. Information about *Pro-Cite* may be acquired through Personal Bibliographic Software, Inc., P.O. Box 4250, Ann Arbor, MI, 48106, (PH.# 313-996-1580).

#### **Description of NPS Citation Bibliography in *Pro-Cite***

The citations from the scientific literature search were entered into *Pro-Cite* under the name NPSBIB, which consisted of four files: 1) NPSBIB.DAT, which contained all the bibliographic information for the citations; 2) NPSBIB.SRT, which was an index to the authors' names in the citation bibliography; 3) NPSBIB.PMT, which included information concerning the style of the printed bibliography; and 4) NPSBIB.REC, which stored the record numbers for each citation. Information describing a single citation was inserted into a numbered record, which was composed of several fields (e.g., author, date of publication).

The five types of citations and the information entered into the Pro-Cite fields for each citation are:

1) Journal Articles: Author(s), Date of Publication, Title of Citation, Journal Name, Volume Number, Issue Number, Location of Citation within the Journal (i.e., pages).

2) Books: Author(s), Date of Publication, Title of Book, Publisher, Place of Publication, Total Number of Pages.

3) Theses/Dissertations: Author, Date of Publication, Title of Citation, Type of Work (e.g., masters thesis), University, Location of University, Total Number of Pages.

4) Conference Proceedings: Author(s), Date of Conference, Title of Citation, Title of Conference, Place of Conference, Total Number of Pages.

5) Technical Reports: Author(s), Date of Publication, Report Title, Report Identification Number, Agency, Agency Location, and Total Number of Pages. Editor(s), Volume Title, and Volume Length were included if the report was published in a compilation of works, such as a symposium.

A diskette containing the NPSBIB file of the citation bibliography in Pro-Cite can be obtained from the National Park Service Mid-Atlantic Regional Office, Division of Resource Management and Visitor Protection, 143 South Third Street, Philadelphia, PA 19106-2878. Specific directions for inputting new citations and managing the existing NPSBIB file may be found in the Pro-Cite manual (Pro-Cite Version 1.4, 1988).

## **Searching the NPS Citation Bibliography**

The *Pro-Cite* citation bibliography may be searched by author, article title, year of publication, and journal or conference title. In addition, each citation within the bibliography has been indexed and can be searched with key terms, which were entered into the "Index" field of the citation. Key terms were divided into five categories, and information for each category was included if available (Appendix 1). The five categories (and their abbreviations) for the index key terms are:

- 1) Taxon (TX): the taxonomic group of the vertebrate species. For amphibians, reptiles, and mammals, the taxonomic order or family (e.g., Sciuridae for squirrels, woodchucks, chipmunks) was the most specific group in which a species was placed. However, for birds, the groups were informal names (e.g., Raptor for all hawks, falcons, eagles, and vultures).
- 2) Season (SSN): the time of the year in which the research project was conducted (e.g., Spring).
- 3) Habitat (HBT): the major habitat type in which the research project was conducted (e.g., Deciduous Forest).
- 4) Level of Information (LV): the type of data collected by the study (e.g., Density).
- 5) Protocol (PTC): the name of the inventorying or monitoring protocol that was used to survey the vertebrates.

The key terms for the Taxon category were organized in a hierarchy. For instance, a journal article on live-trapping eastern chipmunks (*Tamias striatus*) was indexed first as "Mammalia," followed by "Rodentia," "Sciuridae," "Eastern Chipmunk," and "*Tamias striatus*." Similarly, a study on white-footed mice (*Peromyscus leucopus*) was indexed by "Mammalia," "Rodentia," "Muridae," "White-footed Mouse," and "*Peromyscus leucopus*." If either the Latin name (species name) or the common name of the study animal were provided, both names were included as key terms. Therefore, a resource management specialist who wanted to inventory the rodents within a given park could enter "Rodentia" as a search term, and all citations that referenced a protocol to survey rodents would be selected. If the resource management specialist wanted to inventory deer mice within the park, "Muridae" could be entered for all studies on mice, rats, voles, and muskrats, or "Deer Mouse" or "*Peromyscus maniculatus*" could be entered for the protocols pertaining to that species.

A key term was included in the Index field of the citation in *Pro-Cite* if the information for that category was available (Appendix 1). Key terms were chosen from the citation and journal titles. For example, the journal article by Tilghman and Rusch (1981) in *Studies of Avian Biology* entitled "Comparison of Line-transect Methods for Estimating Breeding Bird Densities in Deciduous Woodlots" (#8270) provided the following key terms in the five categories: 1) Taxon: Aves; 2) Habitat: Deciduous Forest; 3) Season: Spring, Summer; 4) Level of Information:

Density; 5) Protocol: Line-transect. This information was provided by the title of the article except for the taxon, which was provided by the title of the article and the title of the journal.

If information for a given category were not known based solely on the title or journal of a citation, the information was collected by inspection of the original article or report, if it were accessible. For example, in the article by Aubrey et al. (1988) entitled "Use of Woody Debris by Plethodontid Salamanders in Douglas-fir Forests in Washington" (#400), the following information was provided by the title: 1) Taxon: Amphibia, Caudata; 2) Habitat: Coniferous Forest; 3) Season: unknown; 4) Level of Information: unknown; 5) Protocol: unknown. Because the last three categories were unknown, the following information was collected by inspection of the original article: 3) Season: Spring, Summer; 4) Level of Information: Relative Abundance; 5) Protocol: Timed Search, Log-turning. In addition, the following information was added to the Taxon category from the article: Amphibia, Caudata, Western Red-backed Salamander, *Plethodon vehiculum*. If information were collected from the original article or report, the phrase "Article Collected" was entered into the "Note" field in Pro-Cite.

In addition to the key terms, the abbreviation for each of the five categories (e.g., TX for Taxon) was entered in the Index field for a citation if a key term for that category was included. For the example of the journal article by Tilghman and

Rusch (1981), the key terms "Aves" and "Deciduous Forest" were included in the "Taxon" and "Habitat" categories, respectively, and the abbreviations "TX" and "HBT" were entered in the Index field.

If the information for a category were not included in the article or if the article were not available, the category was left blank. For example, the journal article by Clark and Campbell (1983) entitled "A Small Carnivore Survey Technique" (#1800) was collected, and the key terms taken from the original article were: 1) Taxon: Mammalia, Carnivora, Rodentia, Sciuridae; 2) Habitat: unknown; 3) Season: unknown; 4) Level of Information: Presence; 5) Protocol: Scent Station. Habitat and Season categories, therefore, would be left blank.

If the information for the key terms were not available from the title or the article or if the original article were not available, the abbreviation for that category was included in the Index field with the letters "NA." For the Clark and Campbell (1983) journal article, the abbreviations "NAHBT" and "NASSN" were included in the Index.

Some articles may involve several taxa, protocols, habitats, or seasons. For instance, the article by Conner et al. (1983) entitled "Scent-station Indices as Measures of Population Abundance for Bobcats, Raccoons, Gray Foxes, and Opossums" (#1920) was indexed by various taxonomic groups (i.e., Mammalia; Carnivora; Bobcat, *Felis rufus*; Raccoon, *Procyon lotor*; Gray Fox, *Urocyon cinereoargenteus*; Didelphimorphia; Virginia Opossum,

*Didelphis virginiana*), and by "TX." Therefore, the total number of citations for key terms within the TX category are not additive and sum up to a number greater than the total number of citations for that category. This was also true for the other index categories.

In summary, the Index field of the citation bibliography could be searched by a variety of key terms (Appendix 1). A single term or any combination of terms connected by a Boolean operator (e.g., and, or, not) may be used for the search. A general search also may be conducted using the abbreviations for the five index categories to yield a list of all articles that provide a key term in the chosen category. Once a list of citations has been obtained, the user may search the selected group of records with another search condition to further limit the scope of the citations.

#### **Adding Citations to Pro-Cite**

Although the list of citations in *Pro-Cite* was completed in January 1994, the NPSBIB file can be updated continually by inserting new citations as articles and reports are published. Newly published journal articles and technical reports may be accessed through the *Wildlife Review* and the *Science Citation Index*. Both the Review and the Index provide a listing of the most recently published journal articles, masters and Ph.D. theses, and conference proceedings, and both sources are

available at most college and university libraries. *Wildlife Review* also is available through the U.S. Fish and Wildlife Service, Office of Information and Transfer, Database Section, 1201 Oak Ridge Drive, Suite 200, Fort Collins, CO, 80525-5589, (Ph. #303-226-9401). By inserting articles in the citation bibliography with the key terms (Appendix 1), the newly entered citations may be searched with the rest of the bibliography.

## **Results**

### **Numbers of Citations**

The extensive literature search for citations involving inventorying and monitoring of terrestrial vertebrates resulted in a total of 908 citations, which were entered into *Pro-Cite*. Two-hundred ninety-three (32%) of the actual articles were examined. Of the 908 citations, 92% provided information on the Taxonomic group inventoried or monitored (Appendix 2). Over one-half (55%) of the 908 citations were on birds, and hence, indexed by the "Aves" key term. Of these, most studies were on Passerines, Upland Groundbirds, and Raptors (100, 86, and 82 citations, respectively). In contrast, there was a relatively low number (53 citations, 6%) of citations indexed by "Amphibia," mostly involving the taxon Caudata. Reptiles were indexed in 79 of the citations (9%), with the number of studies ranging from 31 for snakes to 26 each for lizards and turtles. Of the 244 studies of mammals, most citations involved Rodentia (129 citations, 53%), Insectivora (55 citations, 23%) and Carnivora (49 citations, 20%).

The season in which the study was conducted was indexed in 333 (36%) of the 908 citations. The largest number of the citations that specified the season were completed during the

summer (239 citations, 72%), followed by spring (220 citations, 66%), winter (88 citations, 26%), and fall (84 citations, 25%).

Of the 297 (33%) studies specifying the particular habitat in which the research was conducted, over half (167 citations, 56%) were carried out in Forest, followed by 80 (27%) citations in Wetlands. Other habitats were not well-represented.

A total of 514 (57%) citations was indexed based on the Level of Information (LV). Of these citations, 203 (39%) were studies on population trends, and 141 (27%) and 106 (21%) of the studies provided information on density and relative abundance, respectively, of a vertebrate species.

Forty-eight different protocols were identified in the 606 (67%) citations in which the protocol(s) were specified. The largest number of studies cited the use of various Trapping protocols (169 citations, 28%), followed by Transect protocols (92 citations, 15%), Marking animals (76 citations, 13%), using a Communication Index (61 citations, 10%), Netting animals (56 citations, 9%), and using an Aerial Census (50 citations, 8%).

#### Description of the Protocols

The *Pro-Cite* index was searched to determine which protocols have been documented as appropriate for different taxa, habitats, or seasons. This information was included in tabular form for amphibians and reptiles (Appendix 3), birds (Appendix 4), and mammals (Appendix 5). Each appendix included the following

information taken directly from the *Pro-Cite* citations for each documented protocol:

- 1) name of protocol,
- 2) selected citations from *Pro-Cite* for the protocol,
- 3) taxa for which the protocol is appropriate,
- 4) habitats in which the protocol may be used,
- 5) seasons during which the protocol may be used, and
- 6) level of information gained from the protocol.

The citation for the protocol was provided with the last name(s) of the author(s) and the year in which the study was published. Because there may be several articles with the same author and year, the record number of the *Pro-Cite* citation was included with the record after the name(s) of the author(s). Taxa, habitats, seasons, and level of information were the same categories and key terms used in the index field for *Pro-Cite*. The term "unknown" was entered for any category for which the information was not available.

In addition to these six categories, the following information was estimated for each protocol:

- 1) relative cost of the protocol,
- 2) labor needed to use the protocol,
- 3) materials necessary for the protocol, and
- 4) level of expertise required of the researcher to use the protocol.

The relative cost of the protocol was a qualitative measure of the money and time involved to carry out the protocol, ranging

from low to extremely high, and the cost was relative to other protocols within the same major taxonomic group. Similarly, the labor was the relative amount of labor required to carry out the protocol. The expertise needed to carry out a protocol also was a relative measure. We assumed that a researcher conducting a protocol had at least some ability to identify a given taxon, but this probably varied with years of experience, etc. As with the other categories, if the information for a given category for a protocol in the appendix were unknown or not available, "unknown" was entered for that category. Such information, such as the labor required to dig and monitor pitfall traps, will become available through field-testing the protocols and through future published scientific research.

## **Future Goals**

### **Field-testing the Protocols**

Because there are many protocols available to survey certain abundant taxa (e.g., Aves, Rodentia), we will select and field-test a subset of these protocols to determine the labor-, time-, and cost-effectiveness of these protocols as part of our long-term project in the four national park areas of Pennsylvania. For example, we tentatively will test point counts, fixed-width transects, and variable-width transects for surveying passerine birds in various habitats during all seasons at Gettysburg National Military Park. Some taxonomic groups (e.g., reptiles and amphibians) that are less abundant within the park areas (Yahner et al. 1994) also have relatively few documented protocols in which to survey them. Although we will not place as much emphasis on surveying these taxa, we will attempt to determine presence or abundance of these species with the appropriate protocols. For example, we tentatively will test pitfall traps and coverboards to survey reptiles and amphibians in various habitats at Gettysburg National Military Park.

A select set of protocols will be field-tested at Gettysburg National Military Park and Eisenhower National Historic Site in 1993-94, at Hopewell Furnace National Historic Site in 1994-95, and tentatively at Valley Forge National Historical Park in 1995-

96. We will attempt to determine the abundance and distribution of terrestrial vertebrates within representative habitats in these park areas while assessing the relative effectiveness of the protocols identified in our literature search.

## **Conclusions**

We hope that the citation bibliography in this report is an important and useful tool to resource management specialists. This report provides a specialist with essential information necessary to implement a survey of the vertebrate diversity within a park. We hope that from the information provided by the citation bibliography and by the future field-tests of the protocols we will be able to pinpoint the appropriate protocol for any given combination of taxa, habitats, and seasons for a desired level of information, based on the available resources and management objectives within a park. Ultimately, we believe that this information will be valuable to other national park areas in the eastern United States concerning the appropriate protocols to use given specific goals concerning natural resource management.

Pro-Cite Citation Bibliography

Abernathy, R. K., G. W. Peterson, and J. G. Gosselink. 1985. A small mammal trapping study of the floating freshwater marshes surrounding Lake Boeuf, Louisiana. Northeast Gulf Sci. 7:177-180.

Index Terms: TX/Mammalia/Insectivora/Rodentia/PTC/Trapping/HBT/Wetlands/NALV/NASSN/  
Record #10

Adams, A. W. 1963. Wildlife Surveys and Investigations: Furbearer Investigations. White-Tailed Jackrabbit Research Needs. N.D. State Game and Fish Dept. N.D. W-067-R-02. 26 pp.  
Index Terms: TX/Mammalia/Lagomorpha/White-Tailed Jackrabbit/Lepus townsendii/NAHBT/NAPTC/NALV/NASSN/  
Record #20

Adams, C. C. 1909. An ecological survey of Isle Royale, Lake Superior. Univ. Michigan Museum Rep. State Biological Survey and part of the Rep. of the Board of the Geol. Survey. 468 pp.  
Index Terms: LV/Community/NATX/NAHBT/NAPTC/NASSN/  
Record #30

Adams, L. 1959. An analysis of a population of Snowshoe Hares in northwestern Montana. Ecol. Monogr. 29:141-170.  
Index Terms: TX/Mammalia/Lagomorpha/Snowshoe Hare/Lepus americanus/LV/Population/Density/Habitat Use/HBT/Coniferous Forest/SSN/Spring/Summer/Fall/Winter/PTC/Scat Index/Trapping/Live-trap  
Record #40

Adler, G. H. 1988. The role of habitat structure in organizing small mammal populations and communities. Pages 289-299 in Szaro, R. C., K. E. Severson, and D. R. Patton, eds. Management of Amphibians, Reptiles, and Small Mammals in North America: Proceedings of the Symposium, July 19-21, 1988, Flagstaff, Arizona.  
Index Terms: TX/Mammalia/Insectivora/Rodentia/Muridae/HBT/Mixed Forest/Deciduous Forest/LV/Population/Community/PTC/Trapping/Live-trap/NASSN/  
Record #50

Albers, P. H. 1976. Determining population size of territorial Red-winged Blackbirds. J. Wildl. Manage. 40:761-768.  
Index Terms: TX/Passerine/Red-winged Blackbird/Agelaius phoeniceus/LV/Population/Territory/SSN/Spring/Summer/Breeding/HBT/Agriculture/Wetlands/PTC/Circular-plot/Road Census/  
Record #60

Alcorn, J. R. A discussion of Coyote censusing techniques. U.S. Bur. Sport Fish. and Wildl., Div Wildl Serv. 8 pp.  
Index Terms: TX/Mammalia/Carnivora/Coyote/Canis latrans/PTC/  
Comparison/NAHBT/NALV/NASSN/  
Record #70

Allan, D. 1990. Raptor road counts--The effect of variation in observer speed. Gabar 5:1-2.  
Index Terms: TX/Aves/Raptor/PTC/Road Census/NAHBT/NALV/NASSN/  
Record #80

Allan, P. F., and P. R. Sime. 1943. Hawk census on a Texas panhandle highway. Wilson Bull. 55:29-39.  
Index Terms: TX/Aves/Raptor/SSN/Spring/Summer/Fall/Winter/HBT/  
Grassland/Riparian/Shrub/Scrub/LV/Relative Abundance/PTC/Road  
Census  
Record #90

Allen, G. T. 1987. Estimating Prairie Falcon and Golden Eagle nesting populations in North Dakota. J. Wildl. Manage. 51:739-744.  
Index Terms: TX/Raptor/Prairie Falcon/Falco mexicanus/Golden  
Eagle/Aquila chrysaetos/LV/Density/Population/SSN/Spring/  
Summer/Breeding/HBT/Riparian/Grassland/PTC/Quadrats/Aerial  
Census/  
Record #100

Allen, G. T., S. E. Fast, B. J. Langstaff, D. W. Tomrdle, and B. L. Troutman. 1978. Census of Canada Geese on the Palouse River, Washington, during the spring of 1977. Murrelet 59:96-100.  
Index Terms: TX/Waterfowl/Canada Goose/Branta canadensis/SSN/  
Spring/HBT/Wetlands/Riparian/Cliff/LV/Population/Habitat Use/  
PTC/Boat Census  
Record #110

Allen, S. H., and A. B. Sargeant. 1975. A rural mail-carrier index of North Dakota Red Foxes. Wildl. Soc. Bull. 3:74-77.  
Index Terms: TX/Carnivora/Red Fox/Vulpes vulpes/LV/Density/  
Population/Abundance/SSN/Spring/Fall/Summer/HBT/Agriculture/PTC  
Road Census/Aerial Census/  
Record #120

Alsop, F. J. 1968. A census of breeding bird populations in a virgin spruce forest on Mt. Guyot, Great Smoky Mountains National Park. M.S. thesis, Univ. Tennessee, Knoxville. 69 pp.  
Index Terms: TX/Aves/HBT/Coniferous Forest/LV/Community/SSN/  
Breeding/Spring/Summer/NAPTC  
Record #130

Alsop, F. J. 1970. A census of breeding bird populations in a virgin spruce/fir forest on Mt. Guyot, Great Smoky Mountains, Tennessee. Migrant 41:49-55.

Index Terms: TX/Aves/Passerine/HBT/Coniferous Forest/LV/Density/Community/SSN/Breeding/Spring/Summer/PTC/Spot-mapping Record #140

Ambrose, R. 1980. Results of the 1980 Peregrine Falcon survey on the Yukon-Charley and Colville Rivers, Alaska. USFS Rep.

Index Terms: TX/Aves/Raptor/Peregrine Falcon/Falco peregrinus/HBT/Wetlands/NAPTC/NALV/NASSN/Record #150

American Society of Mammalogists. 1987. Acceptable field methods in mammalogy: Preliminary guidelines approved by the American Society of Mammalogists. J. Mammal. Suppl. 68:1-18.

Index Terms: TX/Mammalia/NASSN/NALV/NAHBT/NAPTC Record #160

Amman, G. D., and P. H. Baldwin. 1960. A comparison of methods for censusing woodpeckers in spruce-fir forests of Colorado. Ecology 41:699-706.

Index Terms: TX/Aves/Woodpecker/HBT/Coniferous Forest/NALV/NASSN/NAPTC Record #170

Andelt, W. F., and S. H. Andelt. 1984. Diet bias in scat deposition-rate surveys of Coyote density. Wildl. Soc. Bull. 12:74-77.

Index Terms: TX/Mammalia/Carnivora/Coyote/Canis latrans/SSN/Spring/Summer/Fall/Winter/LV/Density/PTC/Scat Index/Road Census/NAHBT/Record #180

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Index Terms: TX/Aves/Passerine/LV/Community/Density/SSN/Breeding/Summer/Spring/HBT/Riparian/Forest/PTC/Variable-width Transect/Variable Circular-Plot/Record #190

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Index Terms: TX/Aves/SSN/Breeding/Spring/Summer/Fall/Winter/HBT/Riparian/LV/Density/Community/PTC/Variable-width Transect/Record #200

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Record #210

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Index Terms: TX/Aves/Waterfowl/Brown Pelican/Pelecanus occidentalis/NAHBT/NAPTC/NALV/NASSN/  
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Record #230

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Record #240

Anderson, P. K., and C. L. Smith. 1950. An electrical apparatus for herpetological collecting. *Copeia* 1950:322.  
Index Terms: TX/Reptilia/Serpentes/Lacertilia/Amphibia/PTC/Capture/NAHBT/NALV/NASSN/  
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Index Terms: TX/Aves/Waterfowl/LV/Breeding Success/SSN/Breeding/Summer/Spring/PTC/Nest Count/NAHBT/  
Record #270

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Index Terms: TX/Aves/Raptor/Upland Groundbird/Woodpecker/Passerine/SSN/Spring/Summer/Breeding/HBT/Deciduous Forest/Scrub/Shrub/LV/Community/PTC/Transect

Record #280

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Index Terms: TX/Mammalia/Rodentia/Bank Vole/Microtus/PTC/Comparison/Trapping/Pitfall/Live-trap/NAHBT/NALV/NASSN/Record #310

Anisimov, V. D. 1985. A method of Long-eared Owls census by means of call. Zool. Zh. 64:753-765.

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Record #320

Anon. 1977. Summary of NCPA survey of feral animals in the National Park System. National Parks 51:16-20.

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Index Terms: TX/Aves/Waterfowl/Brant/Branta bernicla/LV/Population/PTC/Aerial Census/NASSN/NAHBT

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Index Terms: TX/Mammalia/LV/Community/NAHBT/NAPTC/NASSN/ Record #370

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Index Terms: TX/Aves/LV/Relative Abundance/NASSN/NAHBT/NAPTC Record #410

Avery, M. L., and C. Van Riper III. Bird community survey at Pinnacles National Monument. National Park Service, Coop Parks Studies Unit, Univ. California, Davis, CA. Tech. Rep. No. 24. 88 pp.

Index Terms: TX/Aves/LV/Community/NASSN/NAHBT/NAPTC  
Record #420

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Record #430

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Index Terms: TX/Aves/Passerine/LV/Relative Abundance/Community/HBT/Scrub/Shrub/Deciduous Forest/SSN/Winter/Spring/PTC/Variable Circular-plot  
Record #440

Azuma, D. L., J. A. Baldwin, and B. R. Noon. Estimating the occupancy of Spotted Owl habitat areas by sampling and adjusting for bias. U.S. For. Serv. Gen. Tech. Rep. PSW No. 124. 9 pp.

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Record #450

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Index Terms: TX/Aves/Waterfowl/Wood Duck/Aix sponsa/LV/Population/PTC/Transect/Ground Count/NAHBT/NASSN/  
Record #460

Baggett, S. C. 1983. A comparison of two avian census methods: Strip transect and fixed circular plot. M.S. thesis, Stephen F. Austin State Univ. 80 pp.

Index Terms: TX/Aves/PTC/Strip Transect/Point Count/Fixed Circular-plot/NASSN/NAHBT/NALV  
Record #470

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Index Terms: TX/Mammalia/Chiroptera/Big-eared Bat/Idionycteris phyllotis/NAHBT/NALV/NASSN/NAPTC  
Record #480

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Sylvilagus floridanus/SSN/Spring/Fall/Winter/LV/Abundance/HBT/  
Mixed Forest/Grassland/Shrub/Scrub/PTC/Trapping/Live-trap  
Record #490

Bailey, N. T. J. 1951. On estimating the size of mobile populations from recapture data. Biometrika 38:293-306.  
Index Terms: PTC/Trapping/Marking/Capture-recapture/NATX/  
NAHBT/NALV/NASSN/  
Record #500

Bailey, T. N., E. E. Bangs, and M. F. Portner. 1986. Trumpeter Swan surveys and studies on the Denali National Wildlife Refuge and Kenai Peninsula, Alaska, 1957-1984. Pap. Trumpeter Swan Soc. Conf. No. 9:64-65.  
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Record #510

Baillie, S. R. 1990. Integrated population monitoring of breeding birds in Britain and Ireland. Ibis 132:151-164.  
Index Terms: TX/Aves/SSN/Breeding/Spring/Summer/LV/Population/  
NAHBT/NAPTC  
Record #520

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Index Terms: TX/Aves/SSN/Breeding/Spring/Summer/LV/Population/  
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Record #530

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Index Terms: TX/Aves/SSN/Breeding/Spring/Summer/LV/Population/  
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Record #540

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Megaderma lyra/PTC/Tagging/Banding/Capture-recapture/NAHBT/  
NALV/NASSN/  
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Balding, T., and E. Dibble. 1984. Responses of Red-tailed, Red-shouldered, and Broad-winged Hawks to high volume playback recordings. *Passenger Pigeon* 46:71-75.

Index Terms: TX/Aves/Raptor/Red-tailed Hawk/Buteo solitarius/Red-shouldered Hawk/Buteo lineatus/Broad-winged Hawk/Buteo platypterus/SSN/Spring/Summer/Breeding/LV/Presence/PTC/Conspecific Recording/NAHBT  
Record #560

Balgooyen, T. G. 1977. Collecting methods for amphibians and reptiles. U.S. Dept. Inter., Bur Land Manage., Denver, Colorado. Tech. Note 299.

Index Terms: TX/Amphibia/Reptilia/PTC/Netting/Trapping/NAHBT/NALV/NASSN/  
Record #570

Baltosser, W. H. 1987. Seasonal analysis of a southwestern New Mexico riparian bird community. *West. Birds* 17:115-131.

Index Terms: TX/Aves/HBT/Riparian/LV/Community/NASSN/NAPTC  
Record #580

Banta, B. H. 1957. A simple trap for collecting desert reptiles. *Herpetologica* 13:174-176.

Index Terms: TX/Reptilia/Amphibia/HBT/Riparian/Desert/SSN/Spring/LV/Presence/PTC/Trapping/Pitfall/  
Record #590

Barnes, R. F. W., and S. C. Tapper. 1985. A method for counting hares by spotlight. *J. Zool.* 206:273-278.

Index Terms: TX/Mammalia/Lagomorpha/PTC/Nightlighting/NASSN/NALV/NAHBT  
Record #600

Barrett, R. H. 1983. Smoked aluminum track plots for determining furbearer distribution and relative abundance. *California Fish and Game* 69:188-190.

Index Terms: TX/Mammalia/Rodentia/Carnivora/SSN/Spring/Summer/Fall/Winter/LV/Distribution/Abundance/Presence/PTC/Tracking/Scent Station/NAHBT/  
Record #610

Bart, J. 1985. Causes of recording errors in singing bird surveys. *Wilson Bull.* 97:161-172.

Index Terms: TX/Aves/Upland Groundbird/Passerine/SSN/Breeding/Summer/LV/Presence/PTC/Breeding Bird Survey/NAHBT/  
Record #620

Bart, J., and S. P. Klosiewski. 1989. Use of presence-absence to measure changes in avian density. *J. Wildl. Manage.* 53:847-852.

Index Terms: TX/Aves/Passerine/LV/Presence/Density/SSN/Breeding/Spring/Summer/PTC/Breeding Bird Survey/NAHBT/Record #630

Bart, J., and J. D. Schoultz. 1984. Reliability of singing bird surveys: Changes in observer efficiency with avian density. *Auk* 101:307-318.

Index Terms: TX/Aves/Passerine/LV/Density/SSN/Summer/Breeding/HBT/Forest/Scrub/Shrub/PTC/Breeding Bird Survey/Road Census/Communication/Comparison/Record #640

Bart, J., R. A. Stehn, J. A. Herrick, N. A. Heaslip, T. A. Bookhout, and J. R. Stenzel. 1984. Survey methods for breeding Yellow Rails. *J. Wildl. Manage.* 48:1382-1386.

Index Terms: TX/Aves/Wader/Yellow Rail/Coturnicops noveboracensis/LV/Population/HBT/Wetlands/Shrub/Scrub/SSN/Breeding/Summer/PTC/Line Transect/Strip Transect/Communication Record #650

Bashore, T. L., and P. M. Krim. 1986. Census and ecological aspects of the Red Fox breeding population within Assateague Island Seashore, 1985. Wildlife Ecology Consultants, Hillsboro, NH. Final Rep.

Index Terms: TX/Mammalia/Carnivora/Red Fox/Vulpes vulpes/LV/Population/NAHBT/NASSN/NAPTC Record #660

Bauer, A. M., and R. A. Sadlier. 1992. The use of mouse glue traps to capture lizards. *Herpetol. Rev.* 23:112-113.

Index Terms: TX/Reptilia/Lacertilia/SSN/Summer/LV/Presence/Abundance/HBT/Coniferous Forest/PTC/Trapping/Record #670

Beacham, T. D., and C. J. Krebs. 1980. Pitfall versus live-trap enumeration of fluctuating populations of Microtus townsendii. *J. Mammal.* 61:486-499.

Index Terms: TX/Mammalia/Rodentia/Muridae/Microtus townsendii/Townsend Vole/LV/Density/Population/SSN/Spring/Summer/Fall/Winter/HBT/Agriculture/Grassland/PTC/Trapping/Pitfall/Live-trap/Record #680

Beatty, W. H. 1977. Attracting Screech Owls. *Redstart* 44:102-104.

Index Terms: TX/Aves/Owl/Screech Owl/Otus asio/NAHBT/NAPTC/NALV/NASSN/Record #690

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Index Terms: TX/Aves/Waterfowl/American White Pelican/  
Pelecanus erythrorhynchos/SSN/Breeding/Spring/Summer/NALV/  
NAHBT/NAPTC  
Record #700

Becker, E. F. J. 1991. A terrestrial fur bearer estimator based on probability sampling. J. Wildl. Manage. 55:730-737.

Index Terms: TX/Mammalia/Carnivora/Lynx/Felis lynx/Wolverine/  
Gulo gulo/LV/Abundance/HBT/Coniferous Forest/SSN/Winter/PTC/  
Tracking/Aerial Census/  
Record #710

Belant, J. L. 1992. Efficacy of three types of live traps for capturing weasels, Mustela spp.. Can. Field-Nat. 106:394-397.

Index Terms: TX/Mammalia/Carnivora/Weasel/Mustela/PTC/  
Trapping/Live-trap/Comparison/NASSN/NAHBT/NALV  
Record #720

Belant, J. L., J. F. Olson, and R. K. Anderson. 1993. Evaluation of the single survey technique for assessing Common Loon populations. J. Field Ornithol. 64:77-83.

Index Terms: TX/Aves/Waterfowl/Common Loon/Gavia immer/LV/  
Population/NASSN/NAPTC/NAHBT  
Record #730

Bell, B. D., C. K. Catchpole, K. J. Corbett, and R. J. Hornby. 1973. The relationship between census results and breeding populations of some marshland passerines. Bird Study 20:127-140.

Index Terms: TX/Aves/Passerine/SSN/Breeding/Spring/Summer/LV/  
Population/HBT/Wetlands/NAPTC  
Record #740

Bell, R. E. 1964. A sound triangulation method for counting Barred Owls. Wilson Bull. 76:292-294.

Index Terms: TX/Aves/Owl/Barred Owl/Strix varia/LV/Population/  
Distribution/Density/HBT/Deciduous Forest/SSN/Breeding/Spring/  
Summer/PTC/Communication/  
Record #750

Berger, D. D., and F. Hameerstrom. 1962. Protecting a trapping station from raptor predation. J. Wildl. Manage. 26:203.

Index Terms: PTC/Trapping/NAHBT/NALV/NASSN/NATX  
Record #760

Best, L. B. 1975. Interpretational errors in the "mapping method" as a census technique. Auk 92:452-460.

Index Terms: TX/Aves/PTC/Spot-mapping/NAHBT/NALV/NASSN/  
Record #770

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Index Terms: TX/Aves/Passerine/PTC/Marking/Netting/Mist-net/  
NAHBT/NALV/NASSN/  
Record #780

Best, L. B. 1981. Seasonal changes in detection of individual bird species. Pages 252-261 in Ralph, C. J., and J. M. Scott, eds. Estimating numbers of terrestrial birds. Stud. Avian Biol. 6.

Index Terms: TX/Aves/Upland Groundbird/Woodpecker/Passerine/  
HBT/Deciduous Forest/Riparian/SSN/Breeding/Spring/Summer/LV/  
Community/Density/PTC/Spot-mapping/Transect/  
Record #790

Best, R. G., R. Fowler, D. Hause, and M. Wehde. 1982. Aerial thermal infrared census of Canada Geese in South Dakota.

Photogr. Eng. Remote Sens. 48:1869-1877.

Index Terms: TX/Aves/Waterfowl/Canada Goose/Branta canadensis/  
PTC/Photography/Aerial Census/NASSN/NALV/NAHBT  
Record #800

Bibby, C. J., and S. T. Buckland. 1987. Bias of bird census results due to detectability varying with habitat. Acta Oecol. Oecol. Gen. 8:103-112.

Index Terms: TX/Aves/NASSN/NAHBT/NALV/NAPTC  
Record #810

Birkan, M. 1991. The validity of various spring census methods as applied to Grey Partridge and Red-legged Partridge pair counts. Trans. Congr. Int. Union Game Biol. 20:238-243.

Index Terms: TX/Aves/Upland Groundbird/Grey Partridge/Perdix perdix/Red-legged Partridge/Alectoris rufa/SSN/Spring/NALV/  
NAPTC/NAHBT  
Record #820

Bishop, R. A., and R. Barrat. 1969. Capturing waterfowl in Iowa by night-lighting. J. Wildl. Manage. 33:956-960.

Index Terms: TX/Aves/Waterfowl/Wader/Mammalia/Rodentia/  
Muridae/Muskrat/Ondatra zibethicus/SSN/Summer/LV/Population/  
HBT/Wetlands/PTC/Nightlighting/Netting/  
Record #830

Bjork, J. 1988. Peregrine Falcon monitoring at Padre Island. Park Science 8:7-9.  
Index Terms: TX/Aves/Raptor/Peregrine Falcon/Falco peregrinus/NALV/NASSN/NAHBT/NAPTC  
Record #840

Bjorklund, J. 1983. Small mammal collecting in the North Cascades. North Cascades National Park. Misc. Res. Paper NCT-18. 7 pp.  
Index Terms: TX/Mammalia/Rodentia/Insectivora/NAHBT/NALV/NASSN/NAPTC  
Record #850

Blacklock, G. W., D. R. Blanikship, S. D. Kenndy, K. A. King, R. T. Paul, R. D. Slack, J. C. Smith, and R. C. Telfair II, compilers. 1978. Texas Colonial Waterbird Census, 1973-1976. Texas Park Wildl. Dept. FA Rep. 15.  
Index Terms: TX/Aves/Shorebird/Wader/NAHBT/NALV/NASSN/NAPTC  
Record #860

Blair, W. F. 1941. Techniques for the study of mammal populations. J. Mammal. 22:148-157.  
Index Terms: TX/Mammalia/Rodentia/Muridae/Insectivora/LV/Population/Density/Distribution/PTC/Trapping/Live-trap/NAHBT/NASSN/  
Record #870

Blake, J. G., J. M. Hanowski, G. J. Niemi, and P. T. Collins. 1991. Hourly variation in transect counts of birds. Ornis Fenn. 68:139-147.  
Index Terms: TX/Aves/Woodpecker/Passerine/HBT/Mixed Forest/Coniferous Forest/Deciduous Forest/SSN/Breeding/Summer/Fall/LV/Abundance/PTC/Fixed-width Transect/  
Record #880

Blanchard, F. N., and E. B. Finster. 1933. A method of marking living snakes for future recognition, with a discussion of some problems and results. Ecology 14:334-347.  
Index Terms: TX/Reptilia/Serpentes/PTC/Marking/NAHBT/NALV/NASSN/  
Record #890

Blankenship, L. H. 1957. Michigan Woodcock Investigations: Investigations of the American Woodcock in Michigan. Mich. Dept. of Conservation. W-090-R-04. 222 pp.  
Index Terms: TX/Aves/Upland Groundbird/American Woodcock/Scolopax minor/LV/Population/NAHBT/NAPTC/NASSN/  
Record #900

Bleitz, D. Mist nets and their use. Bleitz Wildlife Foundation, 5334 Hollywood Blvd., Hollywood, CA. 18 pp.  
Index Terms: PTC/Netting/Mist-net/NATX/NAHBT/NALV/NASSN/ Record #910

Block, W. M., M. L. Morrison, C. Slaymaker, and G. Jongejan. 1988. Design considerations for the study of amphibians, reptiles, and small mammals in California's oak woodlands: Temporal and spatial patterns. Pages 247-253 in Szaro, R. C., K. E. Severson, and D. R. Patton, eds. Management of Amphibians, Reptiles, and Small Mammals in North America: Proceedings of the Symposium, July 19-21, 1988, Flagstaff, Arizona.

Index Terms: TX/Mammalia/Rodentia/Muridae/Insectivora/Amphibia/Salientia/Caudata/Reptilia/Lacertilia/Serpentes/HBT/Deciduous Forest/LV/Relative Abundance/PTC/Trapping/Pitfall/ NASSN/ Record #920

Blondel, J., C. Ferry, and B. Frochot. 1981. Point counts with unlimited distance. Pages 414-420 in Ralph, C. J., and J. M. Scott, eds. Estimating numbers of terrestrial birds. Stud. Avian Biol. 6.

Index Terms: TX/Aves/Passerine/HBT/Coniferous Forest/Deciduous Forest/LV/Density/Community/PTC/Unlimited-distance Point Count/ Spot-mapping/NASSN/ Record #930

Blondel, J., C. Ferry, and B. Frochot. 1970. The punctual indexes of abundance (P.I.A.) method or avifauna census by means of listening stations. Alauda 38:55-71.

Index Terms: TX/Aves/PTC/Point Count/NAHBT/NASSN/NALV Record #940

Blondel, J., and B. Frochot. 1987. Bird census and atlas studies. Acta Oecol. Oecol. Gen. 8:89-344.

Index Terms: TX/Aves/PTC/Breeding Bird Atlas/NASSN/NAHBT/NALV Record #950

Bock, C. E., and L. W. Lepthien. 1975. Patterns of bird species diversity revealed by Christmas counts versus breeding bird surveys. Western Birds 6:95-100.

Index Terms: TX/Aves/LV/Community/SSN/Breeding/Spring/Summer/Winter/PTC/Comparison/Breeding Bird Survey/Christmas Bird Count/NAHBT/ Record #960

Boeker, E. L. 1974. Status of the Golden Eagle surveys in the western states. Wildl. Soc. Bull. 2:46-49.

Index Terms: TX/Aves/Raptor/Golden Eagle/Aquila chrysaetos/LV/Population/SSN/Breeding/Spring/Summer/Winter/PTC/Aerial Census/Transect/Nest Count/Banding/NAHBT/Record #970

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Index Terms: TX/Aves/Raptor/Golden Eagle/Aquila chrysaetos/LV/Nesting success/PTC/Aerial Census/NAHBT/NASSN/Record #980

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Coniferous Forest/SSN/Spring/Summer/Fall/LV/Relative Abundance/  
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Clark, R. G., P. J. Weatherhead, and R. D. Titman. 1983. On the relationship between Breeding Bird Survey counts and estimates of male density in the Red-winged Blackbird. *Wilson Bull.* 95: 453-459.

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Cleland, C. E. 1968. Analysis of the fauna of the Indian Point Site on Isle Royale in Lake Superior. *Mich. Archaeologist* 14: 143-146.

Index Terms: LV/Community/NATX/NAHBT/NAPTC/NASSN/ Record #1810

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Index Terms: TX/Aves/Raptor/Turkey Vulture/Cathartes aura/Black Vulture/Coragyps stratus/LV/Home Range/Habitat Use/NAHBT/NAPTC/NASSN/Record #1860

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Index Terms: PTC/Trapping/NATX/NAHBT/NALV/NASSN/Record #1880

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Index Terms: PTC/Trapping/NATX/NAHBT/NALV/NASSN/Record #1890

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Conner, R. N., and J. G. Dickson. 1980. Strip transect sampling and analysis for avian habitat studies. *Wildl. Soc. Bull.* 8:4-10.

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Constantine, D. G. 1958. An automatic bat-collecting device. *J. Wildl. Manage.* 22:17-22.

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Record #1960

Cooley, M. E. 1948. Improved toe-tag for marking Fox Squirrels. *J. Wildl. Manage.* 12:213.

Index Terms: TX/Mammalia/Rodentia/Sciuridae/Fox Squirrel/Sciurus niger/PTC/Marking/NAHBT/NALV/NASSN/  
Record #1970

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Index Terms: TX/Amphibia/Reptilia/Aves/Mammalia/SSN/Spring/Summer/Fall/Winter/Breeding/HBT/Grassland/Forest/Riparian/Wetlands/Scrub/Shrub/LV/Presence/Relative Abundance/Density/Habitat Use/Population/Community/PTC/Transect/Recording/Marking/Banding/Aerial Census/Road Census/Spot-mapping/Variable Circular-plot/Netting/Communication/Tracking/Scent Station/Trapping/Drift Fence/Point Count/Nightlighting/Photography/  
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Index Terms: TX/Aves/Raptor/PTC/Road Census/NAHBT/NALV/NASSN/  
Record #2020

Cudmore, W. W. 1983. The distribution and ecology of the Eastern Woodrat, Neotoma floridana, in Indiana. Ph.D. dissertation, Indiana State Univ. 148 pp.

Index Terms: TX/Mammalia/Rodentia/Muridae/Eastern Woodrat/Neotoma floridana/LV/Distribution/NAHBT/NAPTC/NASSN/  
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Record #2040

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Index Terms: TX/Mammalia/Lagomorpha/Snowshoe Hare/Lepus americanus/SSN/Fall/Winter/LV/Density/HBT/Coniferous Forest/PTC/Trapping/Live-trap/Capture-recapture/  
Record #2060

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Index Terms: TX/Aves/LV/Density/HBT/Forest/NASSN/NAPTC  
Record #2070

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Index Terms: LV/Community/NATX/NAHBT/NASSN/NAPTC  
Record #2080

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Index Terms: TX/Amphibia/Caudata/Salientia/Reptilia/Testudines/Serpentes/Lacertilia/HBT/Coniferous Forest/Wetlands/Grassland/Deciduous Forest/LV/Abundance/PTC/Trapping/Funnel-trap/Drift Fence/Transect/Road Census/Log-turning/NASSN/  
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Index Terms: TX/Mammalia/Rodentia/Muridae/SSN/Winter/Spring/HBT/Desert/Scrub/Shrub/LV/Relative Abundance/PTC/Trapping/Live-trap/  
Record #2100

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Index Terms: TX/Reptilia/Serpentes/HBT/Mixed Forest/SSN/Spring/Summer/Fall/LV/Presence/Abundance/PTC/Trapping/Funnel-trap/Drift Fence/  
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Davis, D. E. 1956. Manual for analysis of rodent populations. Edward Brothers, Ann Arbor, MI. 82pp.

Index Terms: TX/Mammalia/Rodentia/LV/Population/NAHBT/NAPTC/ NASSN/ Record #2130

Davis, D. E., and R. L. Winstead. 1980. Estimating the numbers of wildlife populations. Pages 221-245 in Schemnitz, S. C., ed. Wildlife Management Techniques Manual. Wildlife Soc., Washington, D.C.

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Dawson, D. G. 1981. Counting birds for a relative measure (index) of density. Pages 12-16 in Ralph, C. J., and J. M. Scott, eds. Estimating numbers of terrestrial birds. Stud. Avian Biol. 6.

Index Terms: TX/Aves/Passerine/LV/Density/SSN/Breeding/Spring/ Summer/HBT/Forest/PTC/Point Count Record #2150

Dawson, D. K. 1981. Sampling in rugged terrain. Pages 311-315 in Ralph, C. J., and J. M. Scott, eds. Estimating numbers of terrestrial birds. Stud. Avian Biol. 6.

Index Terms: TX/Aves/HBT/Cliff/Mountain/PTC/Variable circular-plot/Spot-mapping/Strip Transect/Point Count/NALV/NASSN/ Record #2160

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Index Terms: TX/Aves/Passerine/Blackbird/Turdus merula/ Goldfinch/Carduelis carduelis/Myna/Acridotheres tristis/ Skylark/Alauda arvensis/LV/Density/Relative Abundance/PTC/Point Count/Finnish Line Transect/Spot-mapping/NASSN/NAHBT/ Record #2170

Dawson, J. W., and R. W. Mannan. 1989. A comparison of two methods of estimating breeding group size in Harris' Hawks. *Auk* 106:480-483.

Index Terms: TX/Aves/Raptor/Harris' Hawk/Parabuteo unicinctus/SSN/Breeding/Spring/Summer/LV/Population/NAHBT/NAPTC  
Record #2180

Day, G. I., S. D. Schemnitz, and R. D. Taber. 1980. Capturing and marking wild animals. In Schemnitz, S. D., ed. *Wildlife management techniques manual*. Wildlife Soc., Washington, D.C. 686pp.

Index Terms: TX/Mammalia/PTC/Trapping/Netting/Marking/NAHBT/NALV/NASSN/  
Record #2190

Dean, F. C., and D. L. Chseomore. 1974. Studies of birds and mammals in the Baird and Schwatka Mountains, Alaska. *Biol. Paper*. Univ. of Alaska, Fairbanks. 80 pp.

Index Terms: TX/Aves/Mammalia/HBT/Mountain/NAPTC/NALV/NASSN/  
Record #2200

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Index Terms: TX/Aves/Raptor/SSN/Breeding/Spring/Summer/PTC/Road Census/NALV/NAHBT  
Record #2210

DeGraaf, R. M., and M. Yamasaki. 1992. A nondestructive technique to monitor the relative abundance of terrestrial salamanders. *Wildl. Soc. Bull.* 20:260-264.

Index Terms: TX/Amphibia/Caudata/Red-backed Salamander/Plethodon cinereus/Northern Dusky Salamander/Desmognathus fuscus/LV/Relative Abundance/SSN/Summer/HBT/Deciduous Forest/PTC/Transect/Coverboard  
Record #2220

DeJong, M. J., and J. T. Emlen. 1985. The shape of the auditory detection function and its implications for songbird censusing. *J. Field Ornithol.* 56:213-223.

Index Terms: TX/Aves/Passerine/PTC/Communication/NASSN/NALV/NAHBT  
Record #2230

DeMaso, S. J., F. S. Guthery, G. S. Spears, and S. M. Rice. 1992. Morning covey calls as an index of Northern Bobwhite density. *Wildl. Soc. Bull.* 20:94-101.

Index Terms: TX/Aves/Upland Groundbird/Northern Bobwhite/Colinus virginianus/LV/Density/HBT/Grassland/SSN/Fall/PTC/Transect/Communication/  
Record #2240

Denyes, H. A. 1956. Natural terrestrial communities of Brewster county, Texas, with special reference to the distribution of the mammals. Am. Midl. Nat. 55:289-320.

Index Terms: TX/Mammalia/LV/Community/Distribution/SSN/Spring/Summer/Fall/PTC/Transect/Trapping/NAHBT  
Record #2250

DeSante, D. F. 1981. A field test of the variable circular-plot censusing technique in a California coastal scrub breeding bird community. Pages 177-185 in Ralph, C. J., and J. M. Scott, eds. Estimating numbers of terrestrial birds. Stud. Avian Biol. 6.

Index Terms: TX/Aves/Passerine/LV/Community/Density/HBT/Scrub/Shrub/SSN/Breeding/Spring/Summer/PTC/Variable Circular-plot/Spot-mapping/  
Record #2260

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Index Terms: TX/Aves/LV/Community/HBT/Coniferous Forest/SSN/Breeding/Spring/Summer/PTC/Variable Circular-plot/  
Record #2270

DeSante, D. F. 1987. A field test of the variable circular-plot censusing method in a Sierran subalpine forest habitat. Condor 88:129-142.

Index Terms: TX/Aves/HBT/Coniferous Forest/PTC/Variable Circular-plot/NASSN/NALV  
Record #2280

Dessecher, D. R., and R. H. Yahner. 1984. Breeding bird censuses. Am. Birds 38:71-72.

Index Terms: TX/Aves/SSN/Breeding/Spring/Summer/NAHBT/NALV/NAPTC  
Record #2290

DeYoung, C. A., and J. C. Priebe. 1987. Comparison of inventory methods for Wild Turkeys in south Texas. Proc. Annu. Conf. Southeast. Assoc. Fish Wildl. Agencies 41:294-298.

Index Terms: TX/Aves/Upland Groundbird/Wild Turkey/Meleagris gallopavo/NASSN/NALV/NAHBT/NAPTC  
Record #2300

Dice, L. R. 1938. Some census methods for mammals. J. Wildl. Manage. 2:119.

Index Terms: TX/Mammalia/NAHBT/NALV/NASSN/NAPTC  
Record #2310

Dickman, C. R. 1986. A method for censusing small mammals in urban habitats. J. Zool. 210:631-636.

Index Terms: TX/Mammalia/Rodentia/Insectivora/NALV/NASSN/NAHBT/NAPTC  
Record #2320

Dickson, J. G. 1978. Comparison of breeding bird census techniques. Am. Birds 32:10-13.

Index Terms: TX/Aves/Passerine/SSN/Breeding/Summer/Spring/HBT/Deciduous Forest/LV/Density/Population/PTC/Spot-mapping/Strip Transect  
Record #2330

Dickson, J. G., R. N. Conner, and J. H. Williamson. 1982. An evaluation of techniques for marking cardinals. J. Field Ornithol. 53:420-421.

Index Terms: TX/Aves/Passerine/Northern Cardinal/Cardinalis cardinalis/SSN/Spring/Summer/PTC/Marking/NAHBT/NALV/  
Record #2340

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Index Terms: TX/Mammalia/Carnivora/Bobcat/Felis rufus/PTC/Scent Station/NALV/NAHBT/NASSN  
Record #2350

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Index Terms: TX/Aves/LV/Community/SSN/Breeding/Summer/Spring/HBT/Grassland/PTC/Spot-mapping  
Record #2360

Diem, K. L., and K. H. Lu. 1960. Factors influencing waterfowl censuses in the parklands, Alberta, Canada. J. Wildl. Manage. 24:113-133.

Index Terms: TX/Aves/Waterfowl/HBT/Deciduous Forest/Wetlands/Agriculture/SSN/Summer/Breeding/PTC/Aerial Census/Road Census/NALV/  
Record #2370

Dimmick, R. W. 1962. Population study of Jackson Hole Canada geese. Rep. to the Wyoming Game and Fish Comm.

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Record #2380

Dodd, C. K. Jr. 1991. Drift fence-associated sampling bias of amphibians at a Florida sandhills temporary pond. *J. Herpetol.* 25:296-301.

Index Terms: TX/Amphibia/Salientia/Caudata/SSN/Summer/Spring/Fall/Winter/HBT/Wetlands/PTC/Trapping/Pitfall/Marking/Drift Fence/NALV/  
Record #2390

Dodd, C. K. Jr., and B. G. Charest. 1988. The herpetofaunal community of temporary ponds in north Florida sandhills: Species composition, temporal use, and management implications. Pages 87-97 in Szaro, R. C., K. E. Severson, and D. R. Patton, eds. *Management of Amphibians, Reptiles, and Small Mammals in North America: Proceedings of the Symposium, July 19-21, 1988, Flagstaff, Arizona.*

Index Terms: TX/Amphibia/Caudata/Salientia/Reptilia/Serpentes/Lacertilia/Testudines/HBT/Wetland/LV/Community/PTC/Drift Fence/Trapping/Pitfall/Marking/NASSN/  
Record #2400

Don, B. 1985. The use of drey counts to estimate Gray Squirrel populations. *J. Zool.* 206:282-286.

Index Terms: TX/Mammalia/Rodentia/Sciuridae/Gray Squirrel/Sciurus carolinensis/LV/Population/NASSN/NAHBT/NAPTC  
Record #2410

Donazar, J. A., O. Ceballos, A. Travaini, and F. Hiraldo. 1993. Roadside raptor surveys in the Argentinean Patagonia. *J. Raptor Res.* 27:106-110.

Index Terms: TX/Aves/Raptor/PTC/Road Census/NASSN/NAHBT/NALV  
Record #2420

Doody, J. S., and J. W. Tamplin. 1992. An efficient marking technique for Soft-shelled Turtles. *Herpetol. Rev.* 23:54-56.

Index Terms: TX/Reptilia/Testudines/Soft-shelled Turtle/Trionyx/HBT/Wetlands/PTC/Marking/NALV/NASSN/  
Record #2430

Dorney, R. S., D. R. Thompson, J. B. Hale, and R. F. Wendt. 1958. An evaluation of Ruffed Grouse drumming counts. *J. Wildl. Manage.* 22:35-40.

Index Terms: TX/Aves/Upland Groundbird/Ruffed Grouse/Bonasa umbellus/HBT/Forest/SSN/Winter/Spring/LV/Population/PTC/Communication/Drumming/Flush count/Road census/  
Record #2440

Douglas, C. L., and P. G. Sanchez. 1984. Wildlife census in the Southern Cottonwood Mountains, Death Valley. CPSU Univ. Nevada, Las Vegas. Contribution 006/30. 5 pp.

Index Terms: LV/Community/NAHBT/NATX/NAPTC/NASSN/  
Record #2450

Down, D. D. 1990. Indexing population densities of the cardinal with tape-recorded calls. Wilson Bull. 86:83-91.

Index Terms: TX/Aves/Passerine/Northern Cardinal/Cardinalis cardinalis/LV/Density/PTC/Conspecific Recording/NAHBT/NASSN/ Record #2460

Dragavon, J. A. 1978. Distribution of small mammals in Mount Rainier National Park. M.S. thesis, Univ. Washington. 110 pp.

Index Terms: TX/Mammalia/LV/Distribution/NAHBT/NAPTC/NASSN/ Record #2470

Drennan, S. R. 1981. The Christmas Bird Count: An overlooked and underused sample. Pages 24-29 in Ralph, C. J., and J. M. Scott, eds. Estimating numbers of terrestrial birds. Stud. Avian Biol. 6.

Index Terms: TX/Aves/Owl/Raptor/Wader/Shorebird/Woodpecker/Waterfowl/Upland Groundbird/Passerine/SSN/Winter/LV/Presence/PTC/Christmas Bird Count/NAHBT/ Record #2480

Du Feu, C., and J. McKeeking. 1991. Does constant effort netting estimate juvenile abundance? Ringing Migr. 12:118-123.

Index Terms: TX/Aves/LV/Abundance/PTC/Netting/NAHBT/NASSN/ Record #2490

Dundee, H. A. 1950. An improved method for collecting living lizards and frogs. Herpetologica 6:78-79.

Index Terms: TX/Reptilia/Amphibia/Lacertilia/Salientia/LV/Presence/PTC/Trapping/Netting/NAHBT/NASSN Record #2500

Dunk, J. R. 1991. A selective pole trap for raptors. Wildl. Soc. Bull. 19:208-210.

Index Terms: TX/Aves/Raptor/Black-shouldered Kite/Elanus caeruleus/HBT/Agriculture/SSN/Winter/PTC/Trapping/NALV Record #2510

Dunks, J. H., R. E. Tomlinson, H. M. Deeves, D. D. Dolton, C. E. Braun, and T. P. Zapatka. Migration, harvest, and population dynamics of Mourning Doves banded in the Central Management Unit, 1967-77. U.S. Dept. Inter., Fish and Wild. Serv. Spec. Sci. Rep.--Wildl. 249. 128 pp.

Index Terms: TX/Aves/Upland Groundbird/Mourning Dove/Zenaida macroura/LV/Population/SSN/Spring/Fall/PTC/Banding/NAHBT/ Record #2520

Dwyer, M. 1990. Vertebrate pest control: Animal trapping basics. Pest. Manage. 9:10-13.

Index Terms: PTC/Trapping/NATX/NAHBT/NALV/NASSN/ Record #2530

Dzubin, A. 1969. Assessing breeding populations of ducks by ground counts. Pages 178-230 in Saskatoon Wetland Seminar. Can. Wildl. Serv. Rep. Series 6.  
Index Terms: TX/Aves/Waterfowl/LV/Population/Breeding Success/SSN/Breeding/Spring/Summer/PTC/Ground Count/NAHBT/Record #2540

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Index Terms: TX/Aves/SSN/Breeding/Spring/Summer/NALV/NAHBT/NAPTC  
Record #2550

Eakin, R. M. 1957. Use of copper wire in noosing lizards. Copeia 1957:148.  
Index Terms: TX/Reptilia/Lacertilia/PTC/Netting/NAHBT/NALV/NASSN/  
Record #2560

Eberhardt, L. L. 1969. Population estimates from recapture frequencies. J. Wildl. Manage. 33:28-39.  
Index Terms: TX/Mammalia/Lagomorpha/Eastern Cottontail/Sylvilagus floridanus/Rodentia/Sciuridae/Fox Squirrel/Sciurus niger/Eastern Gray Squirrel/Sciurus carolinensis/Muridae/Amphibia/Reptilia/LV/Density/Population/PTC/Trapping/Live-trap/Marking/Capture-recapture/NAHBT/NASSN/  
Record #2570

Eberhardt, L. L. 1978. Transect methods for population studies. J. Wildl. Manage. 42:1-31.  
Index Terms: LV/Population/PTC/Fixed-width Transect/Variable-width Transect/Strip Transect/Comparison/NATX/NAHBT/NASSN/  
Record #2580

Edwards, D. K., G. L. Dorsey, and J. A. Crawford. 1981. A comparison of three avian census methods. Pages 170-176 in Ralph, C. J., and J. M. Scott, eds. Estimating numbers of terrestrial birds. Stud. Avian Biol. 6.  
Index Terms: TX/Aves/Passerine/LV/Density/SSN/Breeding/Summer/HBT/Wetlands/Deciduous Forest/Shrub/Scrub/PTC/Sample plot/Line Transect/Variable Circular-plot/Fixed-width Circular-plot/Point Count/  
Record #2590

Edwards, W. R. 1975. Rabbit Trap. Illinois Nat. Hist. Survey, Urbana, IL. 1pp.  
Index Terms: TX/Mammalia/Lagomorpha/PTC/Trapping/NAHBT/NALV/NASSN/  
Record #2600

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Index Terms: TX/Aves/Waterfowl/SSN/Winter/LV/Population/PTC/Road Census/Boat Census/Aerial Census/NAHBT  
Record #2610

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Index Terms: TX/Aves/LV/Community/HBT/Forest/PTC/Communication/NASSN  
Record #2620

Ellison, L. N., and R. A. Weeden. 1966. Alaska Wildlife Investigations. Small Game and Furbearer Investigations: Upland Game Bird Investigations. Alas. Dept. of Fish and Game. W-0130R-01.  
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Emlen, J. T. 1977. Estimating breeding season bird densities from transect counts. *Auk* 94:455-468.  
Index Terms: TX/Aves/SSN/Breeding/Spring/Summer/LV/Density/PTC/Transect/Spot-mapping/NAHBT  
Record #2640

Emlen, J. T. 1984. An observer-specific, full-season, strip-map method for censusing songbird communities. *Auk* 101:730-740.  
Index Terms: TX/Aves/Passerine/LV/Community/PTC/Spot-mapping/NASSN/NAHBT  
Record #2650

Emlen, J. T. 1971. Population densities of birds derived from transect counts. *Auk* 88:323-342.  
Index Terms: TX/Aves/Woodpecker/Passerine/Upland Groundbird/LV/Population/Density/HBT/Grassland/Coniferous Forest/Mixed Forest/Deciduous Forest/SSN/Winter/Summer/PTC/Transect/Record #2660

Emlen, J. T., and M. J. DeJong. 1981. The application of song detection threshold distance to census operations. Pages 346-352 in Ralph, C. J., and J. M. Scott, eds. *Estimating numbers of terrestrial birds*. Stud. Avian Biol. 6.  
Index Terms: TX/Aves/Passerine/HBT/Deciduous Forest/PTC/Communication/NALV/NASSN/  
Record #2670

Emlen, J. T., and M. J. DeJong. 1992. Counting birds: The problem of variable hearing abilities. *J. Field Ornithol.* 63: 26-31.

Index Terms: TX/Aves/PTC/Communication/NAHBT/NALV/NASSN/ Record #2680

Enemar, A. 1959. On the determination of the size and composition of a passerine bird population during the breeding season. *Var Fagelvard*, Supplement 2:1-114.

Index Terms: TX/Aves/Passerine/LV/Population/Community/SSN/Breeding/Spring/Summer/NAHBT/NAPTC/ Record #2690

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Index Terms: TX/Aves/SSN/Breeding/Spring/Summer/HBT/Deciduous Forest/Mixed Forest/NALV/NAPTC Record #2700

Enemar, A., B. Sjostrand, and S. Svensson. 1978. The effect of observer variability on bird census results obtained by a territory mapping technique. *Ornis Scand.* 9:31-39.

Index Terms: TX/Aves/PTC/Spot-mapping/NASSN/NALV/NAHBT Record #2710

Engstrom, R. T., and F. C. James. 1984. An evaluation of methods used in the breeding bird census. *Am. Birds* 38:19-23.

Index Terms: TX/Aves/Waterfowl/Raptor/Owl/Woodpecker/Passerine/HBT/Coniferous Forest/LV/Density/Community/SSN/Winter/NAPTC Record #2720

Engstrom, R. T., and F. C. James. 1981. Plot size as a factor in winter bird-population studies. *Condor* 83:34-41.

Index Terms: TX/Aves/Owl/Raptor/Waterfowl/Woodpecker/Passerine/LV/Density/Population/HBT/Coniferous Forest/SSN/Winter/PTC/Grid/Transect/Winter Bird Population Study Record #2730

Erickson, G. E. 1974. Habitat preferences of Wood Ducks (Aix sponsa) in Northern Idaho. Evaluation of trapping techniques for Wood Ducks in Northern Idaho. M.S. thesis, Univ. Idaho. 32 pp.

Index Terms: TX/Aves/Waterfowl/Wood Duck/Aix sponsa/LV/Habitat use/PTC/Trapping/NAHBT/NASSN/ Record #2740

Errington, P. L. 1944. Additional studies on tagged young Muskrats. J. Wildl. Manage. 8:300-306.  
Index Terms: TX/Mammalia/Rodentia/Muridae/Muskrat/Ondatra zibethicus/PTC/Marking/Banding/NAHBT/NALV/NASSN/  
Record #2750

Errington, P. L., and C. S. Errington. 1937. Experiment tagging of young Muskrats for purposes of study. J. Wildl. Manage. 24: 231-260.

Index Terms: TX/Mammalia/Rodentia/Muridae/Muskrat/Ondatra zibethicus/PTC/Marking/Banding/NAHBT/NALV/NASSN/  
Record #2760

Erskine, A. J. 1971. A preliminary catalogue of bird census plot studies in Canada. Can. Wildl. Serv. Progr. Notes 20:1-78.

Index Terms: TX/Aves/NAHBT/NALV/NASSN/NAPTC  
Record #2770

Erskine, A. J. 1972. A preliminary catalogue of bird census plot studies in Canada. Part 2, Can. Wildl. Serv. Progr. Notes 30:1-42.

Index Terms: TX/Aves/NAHBT/NALV/NASSN/NAPTC  
Record #2780

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Record #2790

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Index Terms: TX/Aves/PTC/Spot-mapping/NASSN/NALV/NAHBT  
Record #2800

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Index Terms: TX/Aves/Wader/PTC/Flight-line Count/NAHBT/NALV/  
NASSN/  
Record #2810

Erwin, R. M. 1982. Observer variability in estimating numbers: An experiment. J. Field Ornithol. 53:159-167.  
Index Terms: TX/Aves/Waterfowl/Canvasback/Aythya valisineria/  
LV/Abundance/PTC/Photography/NAHBT/NASSN/  
Record #2820

F.F. Slaney and Co. 1972. Song bird study, environmental investigations, proposed high Ross Reservoir in Canada. Report for Seattle City Light. 12 pp.  
Index Terms: TX/Aves/Passerine/NAHBT/NAPTC/NALV/NASSN/  
Record #2830

Faanes, C. A., and D. Bystrak. 1981. The role of observer bias in the North American Breeding Bird Survey. Pages 353-359 in Ralph, C. J., and J. M. Scott, eds. Estimating numbers of terrestrial birds. Stud. Avian Biol. 6.  
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Record #2840

Fagerstone, K. A., and D. E. Biggins. 1986. Comparison of capture-recapture and visual count indices of prairie dog densities in Black-footed Ferret habitat. Great Basin Naturalist Memoirs 8:94-98.  
Index Terms: TX/Mammalia/Rodentia/Sciuridae/Prairie Dog/Cynomys/HBT/Grassland/PTC/Capture-recapture/NALV/NASSN/  
Record #2850

Fagerstone, K. A., D. E. Biggins, and T. M. Campbell III. 1985. Marking and tagging of Black-footed Ferrets (Mustela nigripes). Pages 10.1-10.10 in Anderson, S. H., and D. B. Inkley, eds. Proc. Black-footed Ferret Workshop, Sept. 18-19, Univ. Wyoming, Laramie.  
Index Terms: TX/Mammalia/Carnivora/Black-footed Ferret/Mustela nigripes/PTC/Marking/Banding/NAHBT/NALV/NASSN/  
Record #2860

Falls, J. B. 1981. Mapping territories with playback: An accurate census method for songbirds. Pages 86-91 in Ralph, C. J., and J. M. Scott, eds. Estimating numbers of terrestrial birds. Stud. Avian Biol. 6.  
Index Terms: TX/Aves/Passerine/Ovenbird/Seiurus motacilla/White-throated Sparrow/Zonotrichia albicollis/Savannah Sparrow/Passerculus sandwichensis/SSN/Breeding/Spring/Summer/LV/Territory/PTC/Conspecific Recording/Spot-mapping/NAHBT/  
Record #2870

Farr, D. R., and P. T. Gregory. 1991. Sources of variation in estimating litter characteristics of the garter snake, Thamnophis elegans. J. Herpetol. 25:261-268.  
Index Terms: TX/Reptilia/Serpentes/Garter Snake/Thamnophis elegans/LV/Breeding Success/Population/SSN/Spring/Summer/Breeding/NAHBT/NAPTC/  
Record #2880

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Index Terms: TX/Aves/Passerine/Crow/Corvus/SSN/Winter/PTC/Nest Count/NALV/NAHBT

Record #2890

Ferner, F. W. 1979. A review of marking techniques for reptiles and amphibians. Society for the study of amphibians and reptiles. Dept. of Zool., Miami Univ, Oxford, Ohio. Herpetological Circular 9.

Index Terms: TX/Reptilia/Amphibia/PTC/Marking/NAHBT/NALV/NASSN/

Record #2900

Ferns, P. N., and G. P. Mudge. 1981. Accuracy of nest counts at a mixed colony of Herring and Lesser Black-backed Gulls. Bird Study 28:244-246.

Index Terms: TX/Aves/Shorebird/Herring Gull/Larus argentatus/Lesser Black-backed Gull/Larus fuscus/LV/Nesting Success/SSN/Breeding/Spring/Summer/PTC/Nest Count/NAHBT/

Record #2910

Ferrand, Y., and F. Grossman. 1990. An efficient method of catching woodcocks. Trans. Congr. Int. Union Game Biol. 19: 359.

Index Terms: TX/Aves/Upland Groundbird/American Woodcock/Scolopax minor/PTC/Netting/Trapping/NAHBT/NALV/NASSN/

Record #2920

Ferry, C., B. Frochot, and Y. Leruth. 1981. Territory and home range of the Blackcap (Sylvia atricapilla) and some other passerines, assessed and compared by mapping and capture-recapture. Pages 119-120 in Ralph, C. J., and J. M. Scott, eds. Estimating numbers of terrestrial birds. Stud. Avian Biol. 6.

Index Terms: TX/Aves/Passerine/Blackcap/Sylvia atricapilla/LV/Territory/Home Range/PTC/Spot-mapping/Capture-recapture/NAHBT/NASSN/

Record #2930

Feuer, R. C. 1980. Underwater traps for aquatic turtles. Herp. Review 11:107-108.

Index Terms: TX/Reptilia/Testudines/HBT/Wetlands/LV/Presence/PTC/Trapping/Netting/NASSN/

Record #2940

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Seigel, R. A., J. T. Collins, and S. S. Novak, eds. Snakes:  
Ecology and evolutionary biology. MacMillan Publishing  
Company, New York. 529pp.  
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NALV/NASSN/  
Record #2950

Fitch, H. S. 1992. Methods of sampling snake populations and  
their relative success. Herpetol. Rev. 23:17-19.  
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Abundance/HBT/Shrub/Scrub/Deciduous Forest/Grassland/SSN/  
Spring/Summer/Fall/PTC/Trapping/Live-trap/Drift Fence/Timed  
Search/Artificial Shelter  
Record #2960

Fitch, H. S. 1951. A simplified type of funnel trap for  
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Salientia/HBT/Forest/LV/Density/SSN/Summer/PTC/Trapping/Funnel-  
trap/  
Record #2970

Fitzwater, W. D. Jr. 1943. Color marking of mammals, with  
special reference to squirrels. J. Wildl. Manage. 7:190-192.  
Index Terms: TX/Mammalia/Rodentia/Sciuridae/PTC/Marking/NAHBT/  
NALV/NASSN/  
Record #2980

Flinders, J. T., and R. M. Hansen. 1973. Abundance and  
dispersion of leporids within a shortgrass ecosystem. J.  
Mammal. 54:287-291.  
Index Terms: TX/Mammalia/Lagomorpha/Black-tailed Jackrabbit/  
Lepus californicus/White-tailed Jackrabbit/Lepus townsendii/  
Desert Cottontail/Sylvilagus audubonii/LV/Abundance/Density/  
Distribution/HBT/Grassland/SSN/Winter/PTC/Road Census/Transect/  
Nightlighting  
Record #2990

Flyger, V. F. 1959. A comparison of methods for estimating  
squirrel populations. J. Wildl. Manage. 23:220.  
Index Terms: TX/Mammalia/Rodentia/Sciuridae/Gray Squirrel/  
Sciurus carolinensis/HBT/Deciduous Forest/LV/Population/  
Density/SSN/Spring/Summer/Fall/WInter/PTC/Marking/Capture-  
recapture/Point Count/Circular-plot/  
Record #3000

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Index Terms: TX/Aves/Raptor/SSN/Breeding/Spring/Summer/NAHBT/NALV/NAPTC  
Record #3010

Forsman, E. D. 1983. Methods and materials for locating and studying Spotted Owls. U.S. Dept. Agric., For Serv. Gen. Tech. Rep. PNW-162. 8 pp.

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Record #3020

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Index Terms: TX/Aves/Owl/LV/Presence/PTC/Conspecific Recording/Communication/NAHBT/NASSN/  
Record #3030

Francis, W. J. 1973. Accuracy of census methods of territorial Red-winged Blackbirds. J. Wildl. Manage. 37:98-102.

Index Terms: TX/Aves/Passerine/Red-winged Blackbird/Agelaius phoeniceus/SSN/Spring/Breeding/LV/Population/HBT/Scrub/Shrub/PTC/Road Census/Spot-mapping/  
Record #3040

Frankenberg, L. 1982. Censusing sparrowhawks: Comparison of results from atlas work and a special census. Var Fagelvarld 41:405-406.

Index Terms: TX/Aves/Raptor/Sparrowhawk/Falco/SSN/Breeding/Spring/Summer/PTC/Breeding Bird Atlas/NALV/NAHBT  
Record #3050

Frankhauser, D. 1964. Plastic adhesive tape for color-marking birds. J. Wildl. Manage. 28:594.

Index Terms: TX/Aves/PTC/Marking/NAHBT/NALV/NASSN/  
Record #3060

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Index Terms: TX/Reptilia/Serpentes/Water Snake/Natrix/LV/Presence/HBT/Wetlands/PTC/Netting/Snaring/Trapping/NASSN  
Record #3070

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Index Terms: TX/Aves/LV/Community/Density/SSN/Breeding/Spring/Summer/NAHBT/NAPTC/  
Record #3080

Franzreb, K. E. 1981. A comparative analysis of territorial mapping and variable-strip transect censusing methods. Pages 164-169 in Ralph, C. J., and J. M. Scott, eds. Estimating numbers of terrestrial birds. Stud. Avian Biol. 6.  
Index Terms: TX/Aves/Raptor/Owl/Woodpecker/Passerine/HBT/Coniferous Forest/LV/Density/SSN/Summer/Breeding/PTC/Spot-mapping/Transect/Variable-width Transect/  
Record #3090

Franzreb, K. E. 1976. Comparison of variable strip transect and spot-map methods for censusing avian populations in a mixed coniferous forest. Condor 78:260-262.  
Index Terms: TX/Aves/Raptor/Owl/Woodpecker/Passerine/SSN/Summer/LV/Density/Population/HBT/Mixed Forest/Coniferous Forest/PTC/Variable-width Transect/Spot-mapping/  
Record #3100

Franzreb, K. E. 1981. The determination of avian densities using the variable-strip and fixed-width transect surveying methods. Pages 139-145 in Ralph, C. J., and J. M. Scott, eds. Estimating numbers of terrestrial birds. Stud. Avian Biol. 6.  
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Record #3110

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Index Terms: TX/Aves/LV/Population/NAHBT/NASSN/NAPTC  
Record #3120

Fraser, J. D. 1978. Bald Eagle reproductive surveys: Accuracy, precision, and timing. M.S. thesis, Univ. Minnesota, Minneapolis. 82 pp.  
Index Terms: TX/Aves/Raptor/Bald Eagle/Haliaeetus leucocephalus/LV/Breeding Success/Nesting Success/SSN/Breeding/Spring/Summer/NAHBT/NAPTC  
Record #3130

Fraser, J. D., L. D. Frenzel, J. E. Mathisen, F. Martin, and M. E. Shough. 1983. Scheduling Bald Eagle reproduction surveys. Wildl. Soc. Bull. 11:13-16.  
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Record #3140

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reproduction surveys. *J. Wildl. Manage.* 48:595-598.  
Index Terms: TX/Aves/Raptor/Bald Eagle/*Haliaeetus*  
*leucocephalus*/LV/Breeding Success/Nesting Success/SSN/Breeding/  
Summer/Spring/HBT/Forest/PTC/Aerial Census  
Record #3150

Frederick, R. B., T. L. Edwards, D. J. Painter, and J. Whitaker.  
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Density/Population/NAHBT/NASSN/NAPTC  
Record #3160

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fence systems for sampling vertebrates. *Australian Zoologist*  
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Index Terms: PTC/Trapping/Pitfall/Drift Fence/NATX/NAHBT/NALV/  
NASSN/  
Record #3170

Fritts, T. H. Evaluation of tortoise abundance based on tortoise  
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Center, University of New Mexico, Albuquerque, NM.  
Index Terms: TX/Reptilia/Testudines/LV/Abundance/PTC/Sign  
Index/NAHBT/NASSN/  
Record #3180

Frochot, B., D. Reudet, and Y. Leruth. 1978. A comparison of  
three different methods of census applied to the same  
population of forest birds. *Polish Ecol. Studies* 3:71-76.  
Index Terms: TX/Aves/Passerine/HBT/Forest/LV/Population/NASSN/  
NAPTC  
Record #3190

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spatial structure of *Rhombomys opimus* ( Rodentia, Muridae)  
colonies using large scale aerial photographs. *Zool. Zh.* 70:  
121-125.  
Index Terms: TX/Mammalia/Rodentia/Muridae/*Rhombomys opimus*/LV/  
Population/Density/Distribution/PTC/Aerial Census/Photography/  
NAHBT/NASSN/  
Record #3200

Fry, J. W. 1931. A 25 year study of the bird life in Sequoia National Park, 1906-31. *Sequoia Bull.* 5:9-12.  
Index Terms: TX/Aves/NAHBT/NAPTC/NALV/NASSN/  
Record #3210

Fuller, M. R., and J. A. Mosher. 1981. Methods of detecting and counting raptors: A review. Pages 235-246 in Ralph, C. J., and J. M. Scott, eds. Estimating numbers of terrestrial birds. *Stud. Avian Biol.* 6.  
Index Terms: TX/Aves/Raptor/Owl/LV/Presence/Abundance/Density/PTC/Road Census/Communication/Nest Count/Aerial Census/Boat Census/Christmas Bird Count/NAHBT/NASSN/  
Record #3220

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Index Terms: TX/Aves/Raptor/NAHBT/NALV/NASSN/NAPTC  
Record #3230

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Index Terms: TX/Aves/Passerine/LV/Population/Relative Abundance/SSN/Spring/Summer/Breeding/HBT/Forest/Grassland/Scrub/Shrub/PTC/Point Count  
Record #3240

Fuller, T. D. 1969. An ecological survey of mammals of the Craters of the Moon National Monument. Idaho State Univ., Pocatello. 108 pp.  
Index Terms: TX/Mammalia/LV/Community/NAHBT/NASSN/NAPTC  
Record #3250

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Index Terms: TX/Mammalia/Rodentia/Muridae/Deer Mouse/Peromyscus maniculatus/HBT/Coniferous Forest/SSN/Spring/Summer/Fall/LV/Abundance/Population/PTC/Trapping/Live-trap/Snap-trap/  
Record #3260

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Index Terms: TX/Aves/Passerine/Red-winged Blackbird/Agelaius phoeniceus/SSN/Summer/Fall/LV/Density/Habitat Use/HBT/Agriculture/PTC/Flush Count/  
Record #3270

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Index Terms: PTC/Line Transect/NATX/NAHBT/NALV/NASSN/  
Record #3280

Gates, J. E. 1983. The Distribution and Status of the Hellbender (*Cryptobranchus alleganiensis*) in Maryland: I. The distribution and Status of *Cryptobranchus alleganiensis* in Maryland. II. Movement Patterns of Translocated *Cryptobranchus alleganiensis* in a Maryland Stream. Final Report. Maryland Wildlife Administration. 27 pp.

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Record #3290

Geier, A. R. 1978. Habitat selection by small mammals of riparian communities: Evaluating the effects of habitat alteration. Iowa Coop. Wildlife Research Unit. Iowa Cooperative Wildlife Research. 49 pp.

Index Terms: TX/Mammalia/Rodentia/Muridae/White-footed Mouse/Sciuridae/Thirteen-lined Ground Squirrel/Eastern Chipmunk/Short-tail Shrew/Masked Shrew/HBT/Riparian/PTC/Trapping/NALV/NASSN/  
Record #3300

Gentry, J. B., M. H. Smith, and J. G. Chelton. 1971. An evaluation of the octagon census method for estimating small mammal populations. *Acta Theriol.* 16:149-159.

Index Terms: TX/Mammalia/Rodentia/Insectivora/LV/Population/NASSN/NAHBT/NAPTC  
Record #3310

Germano, D. J., and D. F. Williams. 1993. Field evaluation of using passive integrated transponder (PIT) tags to permanently mark lizards. *Herpetol. Rev.* 24:54-56.

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Record #3320

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Record #3330

Getz, L. L. 1961. Response of small mammals to live-traps and weather conditions. Am. Midl. Nat. 66:160-169.  
Index Terms: TX/Mammalia/Rodentia/Muridae/White-footed Mouse/  
Peromyscus leucopus/Meadow Vole/Microtus pennsylvanicus/  
Insectivora/Short-tailed Shrew/Blarina brevicauda/HBT/Wetlands/  
Scrub/Shrub/Deciduous Forest/SSN/Summer/Fall/Spring/Winter/LV/  
Density/PTC/Trapping/Live-trap/  
Record #3340

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Abundance/Community/Population/PTC/Trapping/Pitfall/Drift  
Fence/NAHBT/NASSN/  
Record #3350

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Summer/HBT/Wetlands/PTC/Communication/NALV  
Record #3360

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Kentucky Warbler/Oporornis formosus/LV/Population/SSN/Breeding/  
Spring/Summer/PTC/Communication/NAHBT  
Record #3370

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SSN/Breeding/Spring/Summer/NALV/NAHBT/NAPTC  
Record #3380

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Record #3420

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Record #3430

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Index Terms: TX/Amphibia/Reptilia/Serpentes/Testudines/HBT/Wetlands/PTC/Trapping/Netting/NALV/NASSN/  
Record #3440

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Record #3450

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Record #3460

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Record #3470

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Record #3490

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Record #3500

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Record #3510

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Record #3520

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Record #3530

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Record #3550

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Record #3580

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Record #3590

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Record #3600

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Record #3610

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Record #3640

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Record #3650

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Record #3660

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Index Terms: TX/Reptilia/PTC/Trapping/Live-trap/NAHBT/NALV/  
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Record #3670

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Didelphimorphia/Virginia Opossum/Didelphis virginiana/LV/  
Population/SSN/Spring/Summer/Fall/Winter/HBT/Deciduous Forest/  
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Record #3700

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Harden, R. H., R. J. Muir, and D. R. Milledge. 1986. An evaluation of the strip transect method for censusing bird communities in forests. *Aust. Wildl. Res.* 13:203-211.

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Record #3760

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Record #3780

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Bobcat/Felis rufus/Gray Fox/Urocyon cinereoargenteus/Red Fox/  
Vulpes vulpes/LV/Presence/SSN/Summer/HBT/Agriculture/PTC/Scent Station/Mail Survey  
Record #3790

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Record #3800

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Record #3810

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Sylvilagus floridanus/LV/Population/NASSN/NAHBT/NAPTC  
Record #3820

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Record #3830

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Microtus pennsylvanicus/SSN/Summer/LV/Population/Density/PTC/  
Comparison/Marking/Trapping/Live-trap/Capture-recapture/NAHBT  
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Transect  
Record #3860

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Record #3940

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Record #3950

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Index Terms: TX/Amphibia/Salientia/Caudata/Reptilia/Lacertilia/Serpentes/LV/Relative Abundance/PTC/Log-turning/Timed Search/NAHBT/NASSN/  
Record #3960

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Index Terms: TX/Aves/Waterfowl/Canada Goose/Branta canadensis/LV/Population/SSN/Fall/Winter/PTC/Road Census/Capture-recapture/Banding/NAHBT  
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Index Terms: TX/Aves/Passerine/Red-winged Blackbird/Agelaius phoeniceus/LV/Density/Population/SSN/Summer/Breeding/HBT/Agriculture/Wetlands/PTC/Road Census/Marking/Record #4010

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Index Terms: TX/Aves/PTC/Marking/Banding/NAHBT/NALV/NASSN/Record #4020

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Index Terms: TX/Aves/Raptor/Golden Eagle/Aquila chrysaetos/LV/Nesting Success/Density/HBT/Cliff/SSN/Breeding/Spring/Summer/PTC/Aerial Census/Nest Count/Record #4040

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Hodges, J. I., J. G. King, and F. C. Robards. 1979. Resurvey of the Bald Eagle breeding populations in southeast Alaska. J. Wildl. Manage. 43:219-221.

Index Terms: TX/Aves/Raptor/Bald Eagle/halieetus leucocephalus/LV/Population/SSN/Spring/Breeding/HBT/Wetlands/Riparian/Forest/PTC/Aerial Census/ Record #4100

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Index Terms: TX/Mammalia/Carnivora/Raccoon/Procyon lotor/LV/Density/Distribution/HBT/Deciduous Forest/Grassland/Residential/SSN/Spring/Summer/Fall/PTC/Trapping/Live-trap Record #4110

Howard, W. E., and E. M. Brock. 1961. A drift-fence pit trap that preserves captured rodents. J. Mammal. 42:386-391.

Index Terms: TX/Mammalia/Rodentia/Microtus/Vole/Peromyscus/Mouse/Reithrodontomys/Thomomys/Harvest Mouse/Pocket Gopher/SSN/Summer/Spring/Fall/Winter/LV/Abundance/PTC/Trapping/Pitfall/Live-trap/Drift Fence/NAHBT

Record #4120

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Index Terms: TX/Aves/Raptor/PTC/Trapping/Banding/NAHBT/NALV/  
NASSN/  
Record #4130

Hubbard, J. P., J. W. Shipman, and S. O. Williams. 1986. An analysis of vehicular counts of roadside raptors in New Mexico, 1974-1985. Southwest Raptor Management Symposium and Workshop. 6 pp.

Index Terms: TX/Aves/Raptor/Turkey Vulture/Cathartes aura/  
American Kestrel/Falco sparverius/Red-tailed Hawk/Buteo  
jamaicensis/Owl/Passerine/Shrike/Roadrunner/PTC/Road Census/  
NAHBT/NALV/NASSN/  
Record #4140

Huckabee, J. W. n.d. Waterfowl population study in Jackson Hole, Wyoming. M.S. thesis, Univ. Wyoming, Laramie. 54.  
Index Terms: TX/Aves/Waterfowl/LV/Population/NAHBT/NAPTC/  
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Record #4150

Huey, C. M. 1942. A vertebrate faunal survey of the Organ Pipe Cactus National Monument, Arizona. Trans. San Diego Soc. Nat. Hist. 9:353-376.  
Index Terms: LV/Community/NATX/NAHBT/NASSN/NAPTC  
Record #4160

Hugo, A. 1990. Successful recaptures of small mammals using a new marking method. Z. Saeugetierkd 55:421-424.  
Index Terms: TX/Mammalia/Rodentia/Insectivora/PTC/Marking/  
Capture-recapture/NAHBT/NALV/NASSN/  
Record #4170

Hussell, D. J. T. 1981. The use of migration counts for monitoring bird population levels. Pages 92-102 in Ralph, C. J., and J. M. Scott, eds. Estimating numbers of terrestrial birds. Stud. Avian Biol. 6.  
Index Terms: TX/Aves/SSN/Spring/HBT/Scrub/Shrub/LV/Population/  
NAPTC/  
Record #4180

Hutto, R. L., and S. L. Mosconi. 1981. Lateral detectability profiles for line transect bird censuses: Some problems and an alternative. Pages 382-387 in Ralph, C. J., and J. M. Scott, eds. Estimating numbers of terrestrial birds. Stud. Avian Biol. 6.  
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Passerine/HBT/Riparian/SSN/Breeding/Summer/LV/Density/PTC/Line  
Transect/  
Record #4190

Hutto, R. L., S. M. Pletschet, and P. Hendricks. 1986. A fixed-radius point count method for nonbreeding and breeding season use. *Auk* 103:593-602.

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Record #4200

International Bird Census Committee. 1977. Censusing breeding birds by the IPA method. *Pol. Ecol. Stud.* 3:15-17.

Index Terms: TX/Aves/SSN/Breeding/Spring/Summer/PTC/Point Count/IPA/NALV/NAHBT  
Record #4210

International Bird Census Committee. 1970. An international standard for a mapping method in bird census work recommended by the International Bird Census Committee. *Aud. Field Notes* 24:722-726.

Index Terms: TX/Aves/Owl/Woodpecker/Passerine/LV/Territory/Density/SSN/Summer/Fall/Winter/Spring/Breeding/HBT/Deciduous Forest/Mixed Forest/Coniferous Forest/Grassland/Shrub/Scrub/Riparian/PTC/Spot-mapping  
Record #4220

International Bird Census Committee. 1969. Recommendations for an international standard for a mapping method in bird census work. *Bird Study* 16:249-255.

Index Terms: TX/Aves/Passerine/Raptor/Woodpecker/Owl/SSN/Breeding/Summer/LV/Abundance/Population/Density/PTC/Spot-mapping/NAHBT/  
Record #4230

Iverson, J. B. 1979. Another inexpensive turtle trap. *Herpetol. Review* 10:55.

Index Terms: TX/Reptilia/Testudines/HBT/Wetlands/SSN/Fall/Spring/Summer/LV/Presence/Abundance/PTC/Trapping/Funnel-trap/  
Record #4240

Jackson, L. 1990. Flying with falcons: A helicopter search for endangered birds in Labrador. *Can. Geogr.* 110:28-34.

Index Terms: TX/Aves/Raptor/Falcon/Falco/LV/Presence/PTC/Aerial Census/NAHBT/NASSN/  
Record #4250

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Index Terms: TX/Aves/Upland Groundbird/Greater Prairie Chicken/Tympanuchus cupido/Lesser Prairie Chicken/Tympanuchus pallidicinctus/LV/Population/Distribution/PTC/Communication/Drumming/NAHBT/NASSN/  
Record #4260

Janson, R. G. 1946. A survey of the native rabbits of Utah with reference to their classification, distribution, life histories and ecology. M.S. thesis, Utah State Agric. College. 103 pp.  
Index Terms: TX/Mammalia/Lagomorpha/LV/Distribution/Habitat Use/NAHBT/NASSN/NAPTC  
Record #4270

Janvrin, J. A., E. P. Wiggers, and T. V. Dailey. 1991. Evaluation of drive counts for estimating Northern Bobwhite densities. Wildl. Soc. Bull. 19:475-481.  
Index Terms: TX/Aves/Upland Groundbird/Northern Bobwhite/Colinus virginianus/LV/Density/SSN/Fall/Winter/HBT/Deciduous Forest/Grassland/Agriculture/Shrub/Scrub/PTC/Transects/Flushing/  
Record #4280

Jarvinen, O. 1978. Species-specific census efficiency in line transects. Ornis Scand. 9:164-167.  
Index Terms: TX/Aves/PTC/Line Transect/NASSN/NAHBT/NALV/  
Record #4290

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Index Terms: TX/Aves/Owl/Raptor/Passerine/LV/Density/SSN/Spring/Summer/Breeding/PTC/Line Transect/NAHBT/  
Record #4300

Jarvinen, O., and R. A. Vaisanen. 1976. Finnish line transect censuses. Ornis Fenn. 53:115-118.  
Index Terms: TX/Aves/Raptor/Upland Groundbird/Woodpecker/Shorebird/Wader/Owl/Passerine/SSN/Spring/Summer/Breeding/LV/Density/HBT/Coniferous Forest/Mixed Forest/Deciduous Forest/Riparian/Grassland/Shrub/Scrub/Wetlands/PTC/Finnish Line Transect/  
Record #4310

Jarvinen, O., and R. A. Vaisanen. 1981. Methodology for censusing land bird faunas in large regions. Pages 146-151 in Ralph, C. J., and J. M. Scott, eds. Estimating numbers of terrestrial birds. Stud. Avian Biol. 6.  
Index Terms: TX/Aves/Passerine/SSN/Summer/Breeding/LV/Community/Density/HBT/Coniferous Forest/PTC/Line Transect Record #4320

Jenkins, J., E. Provost, T. Fendley, J. Monroe, I. Brisbin Jr., and M. Lenarz. 1979. Techniques and problems associated with a consecutive twenty-five year fur bearer trapline census. Natl. Wildl. Fed. Sci. Tech. Ser. 6:1-7.  
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Record #4330

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Index Terms: TX/Aves/Upland Groundbird/Sage Grouse/Centrocercus urophasianus/HBT/Grassland/SSN/Spring/Breeding/LV/Population/PTC/Lek Index/  
Record #4340

Jennrich, R. I., and F. B. Turner. 1969. Measurement of noncircular home range. J. Theoretical Biol. 22:227-237.  
Index Terms: LV/Home Range/NATX/NAHBT/NAPTC/NASSN/  
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Jensen, T. S. 1975. Trappability of various functional groups of the forest rodents Clethrionomys glareoulus and Apodemus flavicollis, and its application in density estimations. Oikos 26:196-204.  
Index Terms: TX/Mammalia/Rodentia/Muridae/Clethrionomys glareoulus/Apodemus flavicollis/SSN/Summer/Fall/LV/Density/HBT/Mixed Forest/PTC/Trapping/Snap-trap/Live-trap/  
Record #4360

Johnson, D. W. 1976. Population of small mammals on isolated buttes in Canyonlands National Park. M.S. thesis, Univ. Wyo. 84 pp.  
Index Terms: TX/Mammalia/Rodentia/Insectivora/LV/Population/NAHBT/NAPTC/NASSN/  
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Johnson, R. R., B. T. Brown, L. T. Haight, and J. M. Simpson.  
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Raptor/SSN/Breeding/Spring/Summer/LV/Density/PTC/Conspecific  
Recording/Transect/NAHBT/  
Record #4380

Johnson, R. R., and J. J. Dinsmore. 1986. The use of tape-  
recorded calls to count Virginia Rails and Soras. Wilson Bull.  
98:303-306.  
Index Terms: TX/Aves/Wader/Virginia Rail/Rallus limicola/Sora/  
Porzana carolina/LV/Density/HBT/Wetlands/SSN/Spring/Summer/  
Breeding/PTC/Interspecific Recording/Conspecific Recording/  
Communication  
Record #4390

Johnson, W. J. 1965. A zoogeographical analysis of the  
herptofauna in northern Michigan and adjacent Isle Royale.  
M.S. thesis, Michigan State Univ., Lansing. 90 pp.  
Index Terms: TX/Reptilia/Amphibia/LV/Community/NAHBT/NAPTC/  
NASSN/  
Record #4400

Jolly, G. M. 1963. Estimates of population parameters from  
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Index Terms: LV/Population/PTC/Capture-recapture/NATX/NAHBT/  
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Record #4410

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Index Terms: TX/Aves/PTC/Marking/Capture-recapture/NAHBT/NALV/  
NASSN/  
Record #4420

Jones, K. B. 1988. Comparison of herpetofaunas of a natural and  
altered riparian ecosystem. Pages 222-227 in Szaro, R. C., K.  
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Reptiles, and Small Mammals in North America: Proceedings of  
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Trapping/Pitfall/Timed Search/Log-turning/NASSN/  
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Index Terms: TX/Amphibia/Caudata/Salientia/Reptilia/Testudines/Lacertilia/Serpentes/HBT/Riparian/Scrub/Shrub/Coniferous Forest/Deciduous Forest/Grassland/LV/Abundance/Distribution/PTC/Drift Fence/Trapping/Pitfall/Road Census/Timed Search/NASSN/

Record #4440

Jorgensen, C. D., and H. C. Smith. 1974. Mini-grids and small mammal estimates. In Proceedings of the Utah Academy of Sciences, Arts and Letters. 51:Part I.

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Record #4450

Jurek, R. M. 1973. Accelerated Research Program on Shore and Upland Migratory Game Birds. Final Report. California Dept. of Fish and Game. CA W-054-R-01. 292 pp.

Index Terms: TX/Aves/Upland Groundbird/Shorebird/SSN/Spring/Fall/PTC/Trapping/Banding/Nightlighting/NAHBT/NALV/

Record #4460

Kaalaas, J. A., and I. Byrkjedal. 1984. Line transects of waders in an alpine area: A methodological study. Ann. Zool. Fenn. 21:399-402.

Index Terms: TX/Aves/Wader/PTC/Line Transect/NASSN/NALV/NAHBT Record #4470

Kadlec, J. A., and W. H. Drury. 1968. Aerial estimation of the size of gull breeding colonies. J. Wildl. Manage. 32:287-293.

Index Terms: TX/Aves/Shorebird/Gull/Larus/SSN/Breeding/Spring/Summer/HBT/Wetlands/LV/Population/PTC/Ground Count/Nest Count/Photography/Aerial Census/

Record #4480

Kafcas, E. N. 1987. Census and exploitation of a discrete Beaver population in Michigan. M.S. thesis, Central Michigan Univ. 89 pp.

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Kantak, G. E. 1978. A small mammal trapping effort on the Apostle Islands and vicinity. Field Rep. Dept. Zoology. Univ. Wisconsin, Madison. 10 pp.

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Distribution/Abundance/NAPTC/NASSN/

Record #4510

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Index Terms: TX/Aves/Passerine/LV/Relative Abundance/HBT/  
Forest/SSN/Fall/PTC/Netting/Mist-net/

Record #4520

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Grid/Assessment Line/NAHBT/NASSN/

Record #4530

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Index Terms: TX/Aves/NASSN/NAHBT/NALV/NAPTC

Record #4540

Keister, G. P. Jr. 1981. An assessment of Bald Eagle communal roosting in northwestern Washington. Wash. Dept. Game, O. 39 pp.

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Record #4550

Keith, L. B. 1965. A live snare and tagging snare for rabbits. J. Wildl. Manage. 29:877-880.

Index Terms: TX/Mammalia/Lagomorpha/Snowshoe Hare/Lepus americanus/Eastern Cottontail/Sylvilagus floridanus/SSN/Summer/  
Winter/PTC/Marking/Banding/Netting/Snaring/NAHBT/NALV/  
Record #4560

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Index Terms: TX/Mammalia/Lagomorpha/Snowshoe Hare/Lepus americanus/SSN/Summer/Spring/Winter/LV/Population/PTC/Netting/Marking/Trapping/Live-trap/NAHBT/Record #4570

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Kendeigh, S. C. 1944. Measurement of bird populations. *Ecol. Monogr.* 14:67-106.  
Index Terms: TX/Aves/LV/Population/NAHBT/NAPTC/NASSN/Record #4600

Kennedy, M. L., G. D. Baumgardner, M. E. Cope, F. R. Tabatabai, and O. S. Fuller. 1986. Raccoon (Procyon lotor) density as estimated by the census-assessment line technique. *J. Mammal.* 67:166-168.  
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Index Terms: TX/Aves/Raptor/Northern Goshawk/Accipiter gentilis/SSN/Breeding/Spring/Summer/HBT/Coniferous Forest/PTC/Conspecific Recording/Nest Count/Transect/Communication/NALV/Record #4620

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Index Terms: TX/Aves/Raptor/Northern Goshawk/Accipiter gentilis/SSN/Breeding/Spring/Summer/PTC/Conspecific Recording/NALV/NAHBT/Record #4630

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Index Terms: TX/Reptilia/Testudines/HBT/Wetlands/PTC/Trapping/  
NASSN/NALV  
Record #4640
- Keppie, D. M. 1991. The termination of spring display by male Spruce Grouse, and commencement of egg laying by females. *Can. J. Zool.* 69:3000-3004.  
Index Terms: TX/Aves/Upland Groundbird/Spruce Grouse/  
Dendragapus canadensis/LV/Nesting success/SSN/Breeding/Spring/  
NAHBT/NAPTC/  
Record #4650
- Kessler, W. B. 1979. Inventory and analysis techniques for non-game wildlife. In Society for Range Management 32nd Annual Meeting, February 12-15, 1979, Casper, Wyoming. 32:4.  
Index Terms: NATX/NASSN/NAHBT/NALV/NAPTC  
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- Keyes, B. E., and C. E. Grue. 1982. Capturing birds with mist nets: A review. *N. Am. Bird Bander* 7:2-14.  
Index Terms: TX/Aves/PTC/Netting/Mist-net/NAHBT/NALV/NASSN/  
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Index Terms: TX/Aves/LV/Population/HBT/Coniferous Forest/SSN/  
Breeding/Spring/Summer/NAPTC/  
Record #4690
- Kilpi, M. 1987. Annual variation in the efficiency of adult Herring Gull (Larus argentatus) counts. *Ornis Fenn.* 64:76-77.  
Index Terms: TX/Aves/Shorebird/Herring Gull/Larus argentatus/  
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- Kimball, J. W. 1949. The crowing count pheasant census. *J. Wildl. Manage.* 13:101-120.  
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Phasianus colchicus/PTC/Communication/NAHBT/NALV/NASSN/  
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Index Terms: TX/Aves/Raptor/Northern Goshawk/Accipiter gentilis/PTC/Conspecific Recording/Interspecific Recording/Communication/NALV/NAHBT/NASSN  
Record #4720

King, J. G. 1973. The use of small airplanes to gather swan data in Alaska. *Wildfowl*, 24 Slimbridge, Glos., England.

Index Terms: TX/Aves/Waterfowl/Swan/Cygnus/PTC/Aerial Census/NAHBT/NALV/NASSN/  
Record #4730

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Record #4740

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Record #4750

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Index Terms: TX/Aves/Waterfowl/NASSN/NAHBT/NALV/NAPTC  
Record #4760

Kirby, R. E. 1980. Waterfowl production estimates on forested wetlands from pair and brood counts. *Wildl. Soc. Bull.* 8:273-278.

Index Terms: TX/Aves/Waterfowl/LV/Breeding Success/Nesting Success/HBT/Forest/Wetlands/SSN/Breeding/Fall/Spring/Summer/PTC/Nest Count/Ground Count/  
Record #4770

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Index Terms: TX/Aves/HBT/Riparian/Wetlands/PTC/Line Transect/NASSN/NALV  
Record #4780

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Index Terms: TX/Aves/Raptor/Bald Eagle/*Haliaeetus leucocephalus*/LV/Population/SSN/Winter/NAHBT/NAPTC  
Record #4790

Knott, A. P., and J. Venter. 1990. A field test on the accuracy and repeatability of a line transect method. *Lammergeyer* 41: 13-22.  
Index Terms: PTC/Line Transect/NATX/NAHBT/NALV/NASSN/  
Record #4800

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Index Terms: PTC/Transect/NASSN/NALV/NAHBT/NATX  
Record #4810

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Record #4820

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Index Terms: TX/Aves/Wader/Grey Heron/*Ardea cinerea*/LV/  
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Record #4830

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Index Terms: TX/Aves/Upland Groundbird/Ring-necked Pheasant/  
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Record #4840

Koskimies, P., and H. Poeysae. 1989. Waterfowl censusing in environmental monitoring: A comparison between point and round counts. *Ann. Zool. Fenn.* 26:201-206.  
Index Terms: TX/Aves/Waterfowl/PTC/Point Count/NASSN/NAHBT/  
NALV  
Record #4850

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Index Terms: TX/Aves/HBT/Grassland/Forest/PTC/Line Transect/NASSN/NALV  
Record #4860

Krebs, C. J., B. S. Gilbert, S. Boutin, and R. Boonstra. 1987. Estimation of Snowshoe Hare population density from turd transects. Can. J. Zool. 65:565-567.

Index Terms: TX/Mammalia/Lagomorpha/Snowshoe Hare/Lepus americanus/LV/Density/Population/PTC/Scat Index/Transect/NASSN/NAHBT  
Record #4870

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Record #4880

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Record #4890

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Record #4900

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Record #4910

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Record #4930

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Index Terms: TX/Aves/Mammalia/PTC/Nightlighting/NAHBT/NALV/NASSN/  
Record #4950

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Record #4960

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Record #4970

Lack, D. 1937. A review of bird census work and bird population problems. *Ibis* 79:369-395.  
Index Terms: TX/Aves/LV/Population/NAHBT/NASSN/NAPTC  
Record #4980

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Index Terms: TX/Mammalia/Chiroptera/NAHBT/NALV/NASSN/NAPTC  
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Record #5000

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Record #5010

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Record #5020

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Record #5050

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Index Terms: TX/Aves/Raptor/Bald Eagle/Haliaeetus leucocephalus/SSN/Breeding/Spring/Summer/HBT/Coniferous Forest/Riparian/LV/Population/Distribution/PTC/Aerial Census Record #5120

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Index Terms: TX/Aves/Upland Groundbird/Montezuma Quail/Cyrtonyx montezumae/Scaled Quail/Callipepla squamata/Gambel's Quail/Callipepla gambelli/SSN/Breeding/Spring/Summer/PTC/Communication/Conspecific Recording/NAHBT/NALV/  
Record #5160

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Index Terms: TX/Aves/Wader/Sandhill Crane/Grus canadensis/SSN/Spring/NALV/NAHBT/NAPTC  
Record #5170

Lewis, J. C. 1970. Wildlife census methods: A resume. *J. Wildl. Dis.* 6:356-364.  
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Record #5180

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Index Terms: TX/Mammalia/Carnivora/Lutra lutra/Otter/NASSN/NAHBT/NALV/NAPTC  
Record #5190

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Index Terms: TX/Aves/Waterfowl/LV/Abundance/PTC/Banding/  
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Record #5230

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Record #5260

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Record #5290

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Record #5300

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Record #5310

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Index Terms: TX/Mammalia/Lagomorpha/Snowshoe Hare/Lepus americanus/HBT/Mixed Forest/SSN/Fall/Winter/Spring/LV/Habitat Use/PTC/Scat Index/Trapping/Live-trap/Tracking/

Record #5320

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Record #5330

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Record #5340

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Index Terms: TX/Mammalia/Rodentia/Rat/LV/Habitat Use/NAHBT/NAPTC/NASSN/  
Record #5350

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Index Terms: TX/Mammalia/Rodentia/Sciuridae/Woodchuck/Marmota monax/SSN/Spring/Fall/PTC/Marking/Trapping/NAHBT/NALV/  
Record #5360

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Record #5380

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Record #5390

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Index Terms: TX/Aves/Wader/Shorebird/LV/Community/NAHBT/NAPTC/ NASSN/  
Record #5410

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Index Terms: TX/Aves/Waterfowl/Goose/SSN/Winter/NAHBT/NAPTC/ NALV/  
Record #5420

Manci, K. M., and D. H. Rusch. 1988. Indices to distribution and abundance of some inconspicuous waterbirds at Horicon Marsh. J. Field Ornithol. 59:67-75.

Index Terms: TX/Aves/Wader/Passerine/SSN/Breeding/Spring/ Summer/LV/Distribution/Abundance/HBT/Wetlands/PTC/Conspecific Recording/Communication/  
Record #5430

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Index Terms: TX/Aves/NALV/NASSN/NAHBT/NAPTC  
Record #5440

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Index Terms: TX/Aves/SSN/Breeding/Spring/Summer/PTC/Nest Count/NALV/NAHBT  
Record #5450

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Record #5460

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Index Terms: TX/Aves/Wader/Upland Groundbird/HBT/Wetland/SSN/Breeding/Spring/Summer/Fall/Winter/LV/Density/PTC/Conspecific Recording/Communication/Variable Circular-plot  
Record #5470

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Index Terms: TX/Aves/PTC/Marking/Banding/NAHBT/NALV/NASSN/  
Record #5480

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Record #5490

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Record #5500

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Record #5510

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Index Terms: TX/Reptilia/Amphibia/HBT/Wetlands/PTC/Trapping/Netting/NALV/NASSN/  
Record #5520

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Record #5530

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Index Terms: TX/Mammalia/Rodentia/Muridae/White-footed Mouse/Peromyscus leucopus/Southern Red-backed Vole/Clethrionomys gapperi/Insectivora/Masked Shrew/Sorex cinereus/Northern Short-tailed Shrew/Blarina brevicauda/LV/Habitat Use/SSN/Fall/HBT/Deciduous Forest/PTC/Trapping/Live-trap/Pitfall/Record #5540

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Index Terms: TX/Mammalia/Insectivora/Rodentia/Muridae/White-footed Mouse/Peromyscus leucopus/Southern Red-backed Vole/Clethrionomys gapperi/Masked Shrew/Sorex cinereus/Northern Short-tailed Shrew/Blarina brevicauda/Sorex/Tamias/Glaucomys/Zapus/Napaeozapus/Microtus/Vole/Chipmunk/Flying Squirrel/HBT/Deciduous Forest/SSN/Fall/LV/Abundance/Community/PTC/Trapping/Live-trap/Pitfall/Record #5550

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Index Terms: TX/Aves/Upland Groundbird/Passerine/HBT/Forest/SSN/Breeding/Summer/PTC/Communication/Fixed-width Transect/NALV Record #5560

Mayfield, H. F. 1975. Suggestions for calculating nest success. Wilson Bull. 87:456-466.

Index Terms: TX/Aves/Passerine/SSN/Breeding/Spring/Summer/LV/Nesting Success/NAHBT/NAPTC/Record #5570

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Index Terms: TX/Aves/Upland Groundbird/Cock Pheasant/Phasianus colchicus/NASSN/NALV/NAHBT/NAPTC Record #5580

McAuliffe, J. R. 1978. Biological survey and management of sport-hunted Bullfrog populations in Nebraska. Nebraska Game and Parks Commission, Lincoln, Nebraska. 78 pp.

Index Terms: TX/Amphibia/Salientia/Bullfrog/Rana catesbeiana/LV/Population/NAHBT/NASSN/NAPTC Record #5590

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Record #5610

McComb, W. C., K. McGarigal, and R. G. Anthony. 1991. Differential vulnerability of small mammals and amphibians to two trap types and two trap baits in Pacific Northwest forests. Northwest Sci. 65:109-115.  
Index Terms: TX/Mammalia/Rodentia/Insectivora/Amphibia/HBT/Coniferous Forest/PTC/Trapping/NALV/NASSN/Record #5620

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Index Terms: TX/Aves/Wader/Shorebird/NAHBT/NALV/NASSN/NAPTC  
Record #5630

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Index Terms: TX/Aves/Wader/Bittern/Botaurus stellaris/PTC/Communication/NASSN/NALV/NAHBT  
Record #5640

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Index Terms: TX/Mammalia/Lagomorpha/Nuttall's Cottontail/Sylvilagus nuttallii/LV/Density/Relative Abundance/Population/HBT/Scrub/Shrub/SSN/Spring/Summer/Fall/Winter/PTC/Transect/Trapping/Live-trap  
Record #5650

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Record #5950

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Trapping/Live-trap/  
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Record #6080

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Record #6090

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Record #6220

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Record #6230

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Record #6250

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Abundance/Population/SSN/Fall/Summer/HBT/Deciduous Forest/  
Wetlands/PTC/Roost Count/  
Record #6260

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Record #6290

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Index Terms: TX/Mammalia/Rodentia/Sciuridae/Eastern Gray Squirrel/Sciurus carolinensis/HBT/Wetlands/Deciduous Forest/Mixed Forest/SSN/Summer/Winter/PTC/Trapping/Live-trap/NALV  
Record #6320

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Index Terms: TX/Aves/SSN/Breeding/Summer/Spring/PTC/Line Transect/NALV/NAHBT  
Record #6330

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Index Terms: TX/Mammalia/Rodentia/Muridae/Mus musculus/House Mouse/Microtus pennsylvanicus/Meadow Vole/LV/Population/HBT/Grassland/NAPTC/NASSN  
Record #6340

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Index Terms: TX/Amphibia/Caudata/NASSN/NALV/NAHBT/NAPTC  
Record #6350

Peterson, M. K. 1980. A comparison of small mammal populations sampled by pitfall and live-traps in Durango, Mexico. Southwestern Naturalist 25:139-142.

Index Terms: TX/Mammalia/Rodentia/Insectivora/LV/Population/PTC/Trapping/Live-trap/Pitfall/NAHBT/NASSN/  
Record #6360

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Index Terms: TX/Reptilia/Testudines/Painted Turtle/Chrysemys picta/HBT/Wetlands/SSN/Spring/Summer/Fall/PTC/Trapping/NALV/  
Record #6370

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Record #6380

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Index Terms: TX/Mammalia/LV/Community/NAHBT/NAPTC/NASSN/  
Record #6390

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Index Terms: TX/Mammalia/Rodentia/Deer Mouse/Peromyscus maniculatus/HBT/Coniferous Forest/Shrub/Scrub/LV/Population/Density/PTC/Trapping/Live-trap/Grid/Assessment Line/NASSN/  
Record #6400

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Index Terms: TX/Aves/Passerine/Eastern Bluebird/Sialia sialis/SSN/Breeding/Spring/Summer/PTC/Trapping/Nest Count/NAHBT/NALV/  
Record #6410

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Index Terms: TX/Aves/Raptor/Golden Eagle/Aquila chrysaetos/LV/Nesting Success/Breeding Success/SSN/Breeding/Spring/Summer/NAHBT/NAPTC  
Record #6420

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Index Terms: TX/Aves/Raptor/Sharp-shinned Hawk/Accipiter striatus/LV/Habitat Use/SSN/Breeding/Spring/Summer/NAHBT/NAPTC/Record #6430

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Index Terms: TX/Reptilia/Testudines/PTC/Marking/Netting/Trapping/NAHBT/NALV/NASSN/  
Record #6440

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Record #6450

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Record #7060

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Record #7260

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Record #7290

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Striped Skunk/Mephitis mephitis/SSN/Summer/HBT/Agriculture/  
Forest/Scrub/Shrub/LV/Density/Population/PTC/Sign Index/Den  
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Index Terms: LV/Community/NATX/NAHBT/NAPTC/NASSN/  
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Index Terms: TX/Aves/Passerine/PTC/Communication/NASSN/NAHBT/  
NALV  
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Seng, P. T. 1991. Evaluation of techniques for determining tree squirrel abundance and habitat suitability in central Missouri. M.S. thesis, Univ. Missouri, Columbia. 128 pp.  
Index Terms: TX/Mammalia/Rodentia/Sciuridae/Gray Squirrel/  
Sciurus carolinensis/Fox Squirrel/Sciurus niger/LV/Abundance/  
Habitat Use/PTC/Trapping/Marking/NAHBT/NASSN/  
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Sharp, D. U., K. H. Foster, and B. B. Moorhead. 1987. Inventory and monitoring of Spotted and Barred Owls, Olympic Park. National Park Service. 1987 Progress Rep. 28 pp.  
Index Terms: TX/Aves/Owl/Spotted Owl/Strix occidentalis/Barred Owl/Strix varia/NAHBT/NAPTC/NALV/NASSN/  
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Sharrock, J. T. R. 1975. Dot distribution mapping of breeding birds in Europe. Ardeola 21:797-810.  
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Anas platyrhynchos/SSN/Winter/HBT/Wetlands/PTC/Line Transect/  
NALV/  
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Shields, W. M. 1979. Avian census techniques: An analytical review. Pages 23-51 in Dickson, J. G., R. N. Conner, R. R. Fleet, J. C. Kroll, and J. A. Jackson. The Role of Insectivorous Birds in Forest Ecosystems. Academic Press, New York, NY.  
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Record #7410

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Breeding/Spring/Summer/Winter/LV/Density/PTC/Variable-width  
Transect  
Record #7420

Siminski, D. P. 1976. A study of Great Horned Owl (Bubo virginianus) population density with recorded calls in northwestern Ohio. M.S. thesis, Bowling Green Univ., Bowling Green, Ohio. 35 pp.  
Index Terms: TX/Aves/Owl/Great Horned Owl/Bubo virginianus/LV/Density/PTC/Conspecific Recording/Communication/NAHBT/NASSN/Record #7430

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Index Terms: PTC/Communication/NATX/NAHBT/NALV/NASSN/Record #7440

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Index Terms: PTC/Fixed-width Transect/NATX/NAHBT/NALV/NASSN/Record #7460

Sisco, C. 1987. A survey of Spotted Owls in Western Olympic National Park. Wash. Dept. of Wildlife. 24 pp.  
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Index Terms: TX/Aves/SSN/Breeding/Summer/Spring/PTC/Breeding Bird Atlas/NAHBT/NALV/  
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Record #7570

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cinereoargenteus/Bobcat/Felis rufus/Striped Skunk/Mephitis  
mephitis/Raccoon/Procyon lotor/Didelphimorphia/Virginia  
Opossum/Didelphis virginiana/SSN/Fall/HBT/Deciduous Forest/  
Mixed Forest/Wetlands/LV/Population/Abundance/PTC/Trapping/  
Live-trap  
Record #7580

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Chickadee/Parus atricapillus/White-breasted Nuthatch/Sitta  
carolinensis/Northern Cardinal/Cardinalis cardinalis/Dark-eyed  
Junco/Junco hyemalis/SSN/Winter/LV/Density/HBT/Forest/PTC/  
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Record #7650

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Record #7660

Southern, W. F., and L. K. Southern. 1981. Colony census results as indicators of pre-hatching perturbations. Colonial Waterbirds 4:143-149.  
Index Terms: TX/Aves/Wader/Shorebird/LV/Breeding Success/SSN/Breeding/Summer/Spring/NAPTC/NAHBT/  
Record #7670

Sperry, T. M. 1970. A comparison of mid-winter bird census methods in southeastern Kansas. Kans. Ornithol. Soc. Bull. 21: 17-22.  
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Index Terms: TX/Aves/Upland Groundbird/Blue Grouse/Dendragapus obscurus/LV/Population/SSN/Summer/Breeding/PTC/Road Census/Conspecific Recording/Communication/NAHBT/Record #7840

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Index Terms: TX/Aves/Waterfowl/Snow Goose/Chen caerulescens/SSN/Winter/LV/Population/PTC/Photography/Aerial Census/NAHBT Record #7880

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Index Terms: TX/Reptilia/Serpentes/LV/Community/Habitat Use/Distribution/Relative Abundance/SSN/Spring/Summer/HBT/Grassland/Deciduous Forest/Scrub/Shrub/PTC/Transect/Road Census Record #7900

Sullivan, D. S., and T. P. Sullivan. 1980. Deer Mouse trappability in relation to bait preference. *Can. J. Zool.* 58: 2282.

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Index Terms: TX/Aves/Waterfowl/Snow Goose/Chen caerulescens/SSN/Summer/Breeding/LV/Population/PTC/Netting/Trapping/Banding/NAHBT/Record #7920

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Record #7940

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Record #7950

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Record #7960

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Record #7980

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Index Terms: TX/Amphibia/Salientia/Ascaphus truei/Tailed Frog/HBT/Wetlands/PTC/Trapping/Netting/Tadpole Netting/NALV/NASSN/  
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Index Terms: TX/Aves/Upland Groundbird/Dove/SSN/Breeding/Spring/Summer/PTC/Trapping/Marking/NAHBT/NALV/  
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Index Terms: TX/Aves/Upland Groundbird/Woodpecker/Passerine/LV/Density/SSN/Breeding/Spring/Summer/HBT/Riparian/Desert/Scrub/Shrub/PTC/Spot-mapping/Variable Circular-plot  
Record #8050

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Record #8060

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Record #8070

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Index Terms: TX/Mammalia/Rodentia/Insectivora/LV/Community/Abundance/PTC/Trapping/Pitfall/Live-trap/Drift Fence/NAHBT/NASSN/  
Record #8080

Tabberer, D. K. 1971. The Wood Duck roost count as an index to Wood Duck abundance in Louisiana. M.S. thesis, Louisiana State Univ. 77 pp.  
Index Terms: TX/Aves/Waterfowl/Wood Duck/Aix sponsa/LV/Abundance/PTC/Roost Count/NASSN/NAHBT  
Record #8090

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Record #8100

Taber, R. D. 1971. Biotic survey of Ross Lake basin. Inst. For. Prod., College of Forest Resources, Univ. Washington, Seattle.  
Index Terms: LV/Community/NATX/NAHBT/NASSN/NAPTC/  
Record #8110

Taber, R. D., and T. I. McCowan. 1971. Capturing and marking wild animals. In Giles, R. H., Jr., ed. Wildlife Management Techniques. 3rd ed. Wildlife Society, Washington, D.C.  
Index Terms: PTC/Trapping/Netting/Marking/NATX/NAHBT/NALV/NASSN/  
Record #8120

Takos, M. J. 1943. Trapping and banding Muskrats. J. Wildl. Manage. 7:400-407.  
Index Terms: TX/Mammalia/Rodentia/Muridae/Muskrat/Ondatra zibethicus/PTC/Trapping/Marking/Banding/NAHBT/NALV/NASSN/Record #8130

Tanaka, R. Investigation into the edge effect by use of capture-recapture method in a vole population. Res. Pop. Ecol. 12:111-125.

Index Terms: TX/Mammalia/Rodentia/Muridae/Vole/Microtus/LV/Population/PTC/Capture-recapture/NASSN/NAHBT/Record #8140

Tappe, P. A. 1991. Capture-recapture methods for estimating southern Fox Squirrel abundance. Ph.D. dissertation, Clemson Univ. 101 pp.

Index Terms: TX/Mammalia/Rodentia/Sciuridae/Southern Fox Squirrel/Sciurus niger/LV/Abundance/PTC/Capture-recapture/NASSN/NAHBT/Record #8150

Tappe, P. A. 1987. A woodcock census technique for east Texas. M.S. thesis, Stephen F. Austin Univ. 80 pp.

Index Terms: TX/Aves/Upland Groundbird/American Woodcock/Scolopax minor/NASSN/NALV/NAHBT/NAPTC  
Record #8160

Taulman, J. F., R. E. Thill, T. B. Wigley, and M. A. Melchior. 1992. A comparison of bottles and snap traps for short-term small mammal sampling. Am. Midl. Nat. 127:208-210.

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Record #8170

Tautin, J. 1980. Assessment of some important factors affecting the singing-ground survey. Proc. Woodcock Symp. 7:6-11.

Index Terms: TX/Aves/Upland Groundbird/American Woodcock/Scolopax minor/PTC/Communication/NASSN/NAHBT/NALV  
Record #8180

Taylor, C. A. 1979. The density, distribution, and activity patterns of Woodchucks in Cades Cove, Great Smoky Mountains National Park. M.S. thesis, Univ. Tennessee, Knoxville.

Index Terms: TX/Mammalia/Rodentia/Sciuridae/Woodchuck/Marmota monax/LV/Density/Distribution/NASSN/NAHBT/NAPTC  
Record #8190

Taylor, C. A., and M. G. Raphael. 1988. Identification of mammal tracks from sooted track stations in the Pacific Northwest. California Fish and Game 74:4-11.  
Index Terms: TX/Mammalia/PTC/Tracking/Scent Station/NASSN/NAHBT/NALV  
Record #8200

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Index Terms: TX/Mammalia/Rodentia/HBT/Grassland/NASSN/NALV/NAPTC/  
Record #8210

Thomas, B. H. 1988. A comparison of four avian census techniques during the nonbreeding season. M.S. thesis, SUNY Coll. Environ. Sci. For. 66 pp.  
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Record #8220

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Index Terms: TX/Mammalia/Chiroptera/PTC/Marking/Capture-recapture/NASSN/NAHBT/NALV  
Record #8230

Thompson, L. S. 1982. A 1979 census of Great Blue Heron colonies in Montana. Proc. Montana Acad. Sci. 41:23-27.  
Index Terms: TX/Aves/Wader/Great Blue Heron/Ardea herodias/SSN/Breeding/Spring/Summer/NALV/NAHBT/NAPTC  
Record #8240

Tideman, C. R., and D. P. Woodside. 1978. A collapsible bat-trap and comparison of results obtained with the trap and with mist nets. Australian Wildl. Res. 5:355-362.  
Index Terms: TX/Mammalia/Chiroptera/PTC/Trapping/Bat-trap/Netting/Mist-net/NAHBT/NASSN/NALV  
Record #8250

Tiedmann, R. 1990. Analysis of variance as a statistical method for analyzing bird count results. Wader Study Group Bull. No. 59. 9 pp. Abstract only.  
Index Terms: TX/Aves/NASSN/NALV/NAHBT/NAPTC  
Record #8260

Tilghman, N. G., and D. H. Rusch. 1981. Comparison of line-transect methods for estimating breeding bird densities in deciduous woodlots. Pages 202-208 in Ralph, C. J., and J. M. Scott, eds. Estimating numbers of terrestrial birds. Stud. Avian Biol. 6.

Index Terms: TX/Aves/Passerine/LV/Density/HBT/Deciduous Forest/SSN/Breeding/Spring/Summer/PTC/Line Transect Record #8270

Tobey, F. J. 1985. Virginia's amphibians and reptiles, a distributional survey. Privately published, Virginia Herpetological Society. 114 pp.

Index Terms: TX/Amphibia/Reptilia/LV/Distribution/NASSN/NAPTC/NAHBT Record #8280

Tomialojc, L. 1981. On the census accuracy in the line transect. Pages 13-17 in Purroy, F. J., ed. Bird census and Mediterranean landscape.

Index Terms: TX/Aves/PTC/Line Transect/NASSN/NAHBT/NALV Record #8290

Tomialojc, L., and J. Lontkowski. 1989. A technique for censusing territorial Song Thrushes (Thrushes turdus). Ann. Zool. Fenn. 26:235-243.

Index Terms: TX/Aves/Passerine/Song Thrush/Thrushes turdus/NASSN/NALV/NAHBT/NAPTC Record #8300

Tomialojc, L., and J. Verner. 1990. Do point counting and spot mapping produce equivalent estimates of bird densities? Auk 107:447-450.

Index Terms: TX/Aves/LV/Density/PTC/Spot-mapping/Point Count/NASSN/NAHBT Record #8310

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Index Terms: TX/Aves/LV/Density/SSN/Winter/PTC/Christmas Bird Count/NAHBT Record #8330

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Index Terms: TX/Aves/Waterfowl/NASSN/NALV/NAHBT/NAPTC  
Record #8340

Trout, R. G. 1978. Statewide Wildlife Research: Small Mammal Abundance and Distribution in the Missouri River Breaks, Montana. Mont. Dept. of Fish and Game. Mont. W-120-R-09. 75 pp.

Index Terms: TX/Mammalia/Rodentia/Muridae/Deer Mouse/  
Peromyscus maniculatus/Kangaroo Rat/Dipodomys/Sciuridae/  
Chipmunk/Tamias/LV/Abundance/Distribution/PTC/Night-lighting/  
NASSN/NAHBT  
Record #8350

Tuttle, M. D. 1974. An improved trap for bats. J. Mammal. 55: 475-477.

Index Terms: TX/Mammalia/Chiroptera/PTC/Trapping/Bat-trap/  
NASSN/NALV/NAHBT  
Record #8360

Udevitz, M. S., and K.H. Pollock. 1992. Change-in-ratio methods for estimating population size. Pages 90-101 in McCullough, D. R., and R.H. Barrett, eds. Wildlife 2001: Populations. Elsevier Science Publishers, London.

Index Terms: LV/Population/NATX/NAHBT/NASSN/NAPTC  
Record #8370

Udvardy, M. D. F. 1957. An evaluation of quantitative studies in birds. Cold Spring Harbor Symp. Quantitative Biol. 22:301-311.

Index Terms: TX/Aves/NAHBT/NALV/NASSN/NAPTC  
Record #8380

Urban, D. 1970. Raccoon populations, movement patterns, and predation on a managed waterfowl marsh. J. Wildl. Manage. 34: 372-382.

Index Terms: TX/Mammalia/Carnivora/Raccoon/Procyon lotor/LV/  
Density/Population/SSN/Spring/Summer/Fall/Winter/HBT/Wetlands/  
PTC/Trapping/Live-trap/Marking/Capture-recapture/  
Record #8390

Van Zyll DeJong, C. G. 1975. The distribution and abundance of the Wolverine (Gulo gulo) in Canada. Can. Field-Nat. 89:431-437.

Index Terms: TX/Mammalia/Carnivora/Wolverine/Gulo luscus/LV/  
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Record #8400

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Index Terms: TX/Aves/SSN/Breeding/Spring/Summer/PTC/Capture-recapture/Netting/NALV/NAHBT  
Record #8410

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Index Terms: TX/Aves/NALV/NAHBT/NASSN/NAPTC  
Record #8420

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Index Terms: LV/Population/NATX/NASSN/NAHBT/NAPTC  
Record #8450

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Index Terms: TX/Aves/Raptor/Upland Groundbird/Owl/Woodpecker/Passerine/HBT/Mixed Forest/SSN/Spring/Winter/LV/Relative Abundance/Community/Density/PTC/Fixed-width Transect/Variable-width Transect/Point Count/  
Record #8460

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Index Terms: TX/Aves/HBT/Mixed Forest/PTC/Transect/Spot-mapping/NASSN/NALV  
Record #8470

Verner, J., and L. V. Ritter. 1986. Hourly variation in morning point counts of birds. *Auk* 103:117-124.

Index Terms: TX/Aves/HBT/Grassland/Mixed Forest/LV/Abundance/SSN/Spring/Summer/Winter/PTC/Fixed-width Point Count/Variable-width Point Count/Variable Circular-plot/  
Record #8480

Village, A. 1984. Problems in estimating kestrel breeding density. *Bird Study* 31:121-125.

Index Terms: TX/Aves/Raptor/Kestrel/Falco/LV/Density/SSN/Breeding/Spring/Summer/NAPTC/NAHBT  
Record #8490

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Index Terms: TX/Mammalia/Rodentia/Insectivora/LV/Abundance/PTC/Trapping/Snap-trap/Sign Index/NASSN/NAHBT  
Record #8500

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Index Terms: TX/Reptilia/Testudines/HBT/Wetlands/PTC/Trapping/NALV/NASSN  
Record #8510

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Record #8520

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Index Terms: TX/Reptilia/Lacertilia/PTC/Trapping/NALV/NASSN/NAHBT  
Record #8530

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Record #8540

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Record #8550

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Index Terms: TX/Amphibia/Reptilia/PTC/Marking/NALV/NAHBT/NASSN  
Record #8560

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Netting/Nightlighting/NALV  
Record #8570

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Record #8580

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Index Terms: TX/Mammalia/Rodentia/Muridae/Deer Mouse/  
Peromyscus maniculatus/SSN/Spring/HBT/Coniferous Forest/LV/  
Population/PTC/Trapping/Live-trap/Pitfall/  
Record #8590

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Record #8620

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Index Terms: TX/Aves/PTC/Banding/NASSN/NAHBT/NALV Record #8640

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Index Terms: TX/Aves/LV/Community/NAHBT/NASSN/NAPTC Record #8650

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Index Terms: TX/Mammalia/Lagomorpha/Snowshoe Hare/*Lepus americanus*/LV/Population/NASSN/NAHBT/NAPTC Record #8660

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Record #8670

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Record #8690

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Record #8700

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Record #8730

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Record #8740

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Record #8750

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Record #8760

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Record #8770

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Record #8790

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Summer/HBT/Coniferous Forest/PTC/Trapping/Pitfall/Live-trap/  
Snap-trap/Drift Fence  
Record #8800

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Record #8810

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NAHBT  
Record #8820

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gallopavo/PTC/Sign Index/NASSN/NALV/NAHBT  
Record #8830

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Record #8840

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Record #8850

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Wrakestraw, G. F. 1973. The 1973 Wyoming Bald and Golden Eagle survey. Am. Birds 27:716-718.

Index Terms: TX/Aves/Raptor/Bald Eagle/Haliaeetus leucocephalus/Golden Eagle/Aquila chrysaetos/NAPTC/NASSN/NALV/NAHBT  
Record #8900

Wright, A. L. 1984. Winter habitat use and abundance of Black and Turkey Vultures at Gettysburg. M.S. thesis, Penn. State Univ. 42 pp.

Index Terms: TX/Aves/Raptor/Black Vulture/Coragyps atratus/Turkey Vulture/Cathartes aura/LV/Abundance/Habitat Use/SSN/Winter/NAPTC/NAHBT

Record #8910

Wright, A. L., R. H. Yahner, and G. L. Storm. 1986. Roost-tree characteristics and abundance of wintering vultures at a communal roost in south central Pennsylvania. Raptor Res. 20: 102-107.

Index Terms: TX/Aves/Raptor/Black Vulture/Coragyps atratus/Turkey Vulture/Cathartes aura/LV/Habitat Use/Abundance/SSN/Winter/NAPTC/NAHBT

Record #8920

Wright, E. G. 1939. Marking birds by imping feathers. J. Wildl. Manage. 3:238-239.

Index Terms: TX/Aves/PTC/Marking/NASSN/NALV/NAHBT

Record #8930

Wright, G. M., J. Dixon, and B. Thompson. 1933. A preliminary survey of faunal relations in National Parks. N.P.S. Fauna Series 1. Wash. D.C.

Index Terms: LV/Community/NATX/NAPTC/NAHBT/NASSN  
Record #8940

Yahner, R. H. 1984. Effects of habitat patchiness created by a Ruffed Grouse management plan on breeding bird communities. Am. Midland Nat. 111:409-413.

Index Terms: TX/Aves/Woodpecker/Passerine/LV/Community/Density/HBT/Deciduous Forest/SSN/Breeding/Spring/Summer/PTC/Fixed-width Transect

Record #8950

Yahner, R. H., and H. R. Smith. 1990. Avian community structure and habitat relationships in central Pennsylvania forests. J. Penn. Acad. Sci. 64:3-7.

Index Terms: TX/Aves/Passerine/LV/Abundance/HBT/Deciduous Forest/SSN/Summer/Breeding/PTC/Fixed-width Transect

Record #8960

Yahner, R. H., and H. R. Smith. 1991. Small mammal abundance and habitat relationships on deciduous forested sites with different susceptibility to Gypsy Moth defoliation.

Environmental Manage. 15:113-120.

Index Terms: TX/Mammalia/Rodentia/Insectivora/Masked Shrew/  
Sorex cinereus/Northern Short-tailed Shrew/Blarian brevicauda/  
Rodentia/Muridae/White-footed Mouse/Peromyscus leucopus/  
Southern Red-backed Vole/Clethrionomys gapperi/HBT/Deciduous  
Forest/LV/Relative Abundance/Distribution/SSN/Summer/PTC/  
Trapping/Pitfall/Live-trap

Record #8970

Yalden, D. W., and P. E. Yalden. 1991. Efficiency of censusing Golden Plovers. Wader Study Group Bull. 62:32-36.

Index Terms: TX/Aves/Shorebird/Greater Golden Plover/Pluvialis apricaria/Lesser Golden Plover/Pluvialis dominica/NASSN/NAHBT/  
NALV/NAPTC

Record #8980

Yo, S., R. E. Marsh, and T. P. Salmon. 1988. Correlation of two census methods (food consumption and gnawing evidence) for assessing Norway Rat populations. Am. Soc. Test. Materials ASTM Spec. Tech. Publ. 974:81-88.

Index Terms: TX/Mammalia/Rodentia/Muridae/Norway Rat/Rattus norvegicus/LV/Population/PTC/Sign Index/NASSN/NAHBT

Record #8990

Yosef, R., and F. E. Lohrer. 1992. A composite treadle/bal-chatri trap for Loggerhead Shrikes. Wildl. Soc. Bull. 20:116-118.

Index Terms: TX/Aves/Passerine/Loggerhead Shrike/Lanius ludovicianus/LV/Presence/SSN/Summer/Winter/HBT/Wetlands/  
Agriculture/Deciduous Forest/PTC/Trapping/Bal-chatri/Banding  
Record #9000

Yui, M. 1974. The census method of the woodland bird population during the breeding season. Bull. Gov. For. Exp. Stn. 264:13-84.

Index Terms: TX/Aves/SSN/Breeding/Spring/Summer/HBT/Forest/LV/  
Community/NAPTC  
Record #9010

Yui, M. 1978. Studies on the line transect census method of the woodland bird populations. I. An analysis of diurnal change of the census effectiveness. Misc. Rep. Yamashina Inst. Ornithol. 10:70-81.

Index Terms: TX/Aves/HBT/Forest/LV/Community/PTC/Line  
Transect/NASSN/  
Record #9020

Yunger, J. A., R. Brewer, and R. Snook. 1992. A method for decreasing trap mortality of Sorex. Can. Field-Nat. 106:249-251.

Index Terms: TX/Mammalia/Insectivora/Sorex cinereus/Masked Shrew/HBT/Wetlands/SSN/Spring/Summer/Fall/PTC/Trapping/Pitfall/NALV

Record #9030

Zackheim, H. S. 1982. Statewide Wildlife Research: Ecology and Population Status of the River Otter in Southwestern Montana. Mont. Dept. of Fish, Wildlife and Parks. Mont. W-120-R-13. 103 pp.

Index Terms: TX/Mammalia/Carnivora/River Otter/Lutra canadensis/LV/Population/NASSN/NAHBT/NAPTC

Record #9040

Zembal, R., J. M. Fancher, C. S. Nordby, and R. J. Bransfield. 1985. Intermarsh movements by light-footed Clapper Rails indicated in part through regular censusing. Calif. Fish. Game 71:164-171.

Index Terms: TX/Aves/Wader/Clapper Rail/Rallus longirostris/HBT/Wetlands/NASSN/NALV/NAPTC

Record #9050

Zippin, C. 1956. An evaluation of the removal method of estimating animal populations. Biometrics 12:163-189.

Index Terms: LV/Population/PTC/Trapping/Removal/NATX/NASSN/NAHBT

Record #9060

Zippin, C. 1958. The removal method of population estimation. J. Wildl. Manage. 22:82-90.

Index Terms: LV/Population/PTC/Trapping/Removal/NASSN/NATX/NAHBT

Record #9070

Zwickel, F. C., and J. F. Bendell. 1967. A snare for capturing Blue Grouse. J. Wildl. Manage. 31:202-204.

Index Terms: TX/Aves/Upland Groundbird/Blue Grouse/Dendragapus obscurus/SSN/Summer/Breeding/PTC/Netting/Snaring/Banding/NALV/NAHBT

Record #9080

## Literature Cited

- Ambrose, J. P., and S. P. Bratton. 1990. Trends in landscape heterogeneity along the border of Great Smoky Mountains National Park. *Conserv. Biol.* 4:135-143.
- Anderson, J. R., E. E. Hardy, J. T. Roach, and R. E. Witmer. 1976. A land use and land cover classification system for use with remote sensor data. *Geological Survey Professional Paper* 964. 27 pp.
- Cooperrider, A. Y., R. J. Boyd, and H. R. Stuart, eds. 1986. *Inventory and monitoring of wildlife habitat.* U.S. Dept. Inter., Bur. Land Manage. Service Center. Denver, CO. xviii + 858 pp.
- Davis, D. E., ed. 1982. *The 1982 CRC handbook of census methods for terrestrial vertebrates.* CRC Press, Inc. Boca Raton, FL.
- Drost, C. A., and T. J. Stohlgren. 1993. *Natural resource inventory and monitoring bibliography.* U.S. Dept. Inter., NPS Tech. Rep. 93-04. 211 pp.
- Pro-Cite Version 1.4. 1988. Personal Bibliographic Software, Inc. Ann Arbor, MI.
- Yahner, R. H., G. L. Storm, G. S. Keller, and R. W. Rohrbaugh. 1994. *Inventorying and monitoring protocols of vertebrates in national park areas of the eastern United States: the faunal report.* U.S. Dept. Inter. Nat. Park Serv. Tech. Rep. NPS/MAR/NRTR-94/058. 81 pp.

**Appendix 1**  
**Categories and Key Terms for the *Pro-Cite* Index**

## **Appendix 1. Categories and key terms for the Pro-Cite index**

### **I. Taxon (TX)**

- A. Amphibia
  - 1. Caudata (Salamanders)
  - 2. Salientia (Toads, Frogs)
- B. Reptilia
  - 1. Testudines (Turtles and Tortoises)
  - 2. Lacertilia (Lizards)
  - 3. Serpentes (Snakes)
- C. Aves
  - 1. Waterfowl (Gaviiformes, Podicipediformes, Pelecaniformes, and Anseriformes)
  - 2. Shorebird (Charadriiformes)
  - 3. Wader (Ciconiiformes and Gruiformes)
  - 4. Upland Groundbird (Galliformes and Columbiformes)
  - 5. Raptor (Hawks, Falcons, Vultures)
  - 6. Owl (Strigiformes)
  - 7. Woodpecker (Piciformes)
  - 8. Passerine (Passeriformes, Caprimulgiformes, Cuculiformes, Apodiformes, Coraciiformes)
- D. Mammalia
  - 1. Didelphimorphia (Virginia Opossum)
  - 2. Insectivora (Shrews, Moles)
  - 3. Chiroptera (Bats)
  - 4. Carnivora (Raccoon, Weasels, Skunks, Canids, Felids)
  - 5. Rodentia
    - a. Sciuridae (Squirrels, Chipmunks, Prairie Dogs, Ground Squirrels)
    - b. Castoridae (Beaver)
    - c. Muridae (Mice, Rats, Lemmings, Voles)
    - d. Erethizontidae (Porcupine)
  - 6. Lagomorpha (Rabbits, Hares)

### **II. Habitat (HBT)**

- A. Cliff
- B. Riparian
- C. Scrub/Shrub
- D. Forest (Woodland)
  - 1. Coniferous
  - 2. Deciduous
  - 3. Mixed
- E. Grassland (Prairie)
- F. Agriculture (Pasture, Fields)
- G. Wetlands (Ponds, Lakes, Marshes, Bogs, Swamps)
- H. Desert
- I. Cave

## **Appendix 1. (continued)**

### **III. Season (SSN)**

- A. Breeding
- B. Winter
- C. Spring
- D. Summer
- E. Fall

### **IV. Level of Information (LV)**

- A. Presence
- B. Abundance
- C. Density
- D. Distribution
- E. Population (Trends)
- F. Nesting/Breeding Success
- G. Territory
- H. Home Range
- I. Community (Diversity and Structure)
- J. Habitat Use

### **V. Protocol (PTC)**

- A. Transect
  - 1. Fixed-width
  - 2. Variable-width
  - 3. Line
  - 4. Strip
- B. Variable Circular-plot
- C. Point Count (Fixed-area Circular-plot)
- D. Spot-mapping
- E. Communication Index
- F. Recording
  - 1. Conspecific
  - 2. Interspecific
- G. Scat Index
- H. Pellet Index
- I. Den/Dam/Lodge Index
- J. Tracking
- K. Scent Station
- L. Nest Count
- M. Roost Count
- N. Flush Count
- O. Nightlighting
- P. Sounding
- Q. Road Kill
- R. Road Census
- S. Boat Census
- T. Aerial Census
- U. Quadrat
- V. Photography

**Appendix 1. (continued)**

- W. Netting
  - 1. Mist-net
  - 2. Tadpole Netting
- X. Snaring
- Y. Trapping
  - 1. Pitfall
  - 2. Snap-trap
  - 3. Live-trap
  - 4. Bat-trap
  - 5. Funnel-trap
- Z. Drift Fence
- AA. Removal
- BB. Marking
- CC. Banding/Tagging
- DD. Capture-recapture
- EE. Assessment Line (Grid)
- FF. Rock-/Log-turning
- GG. Coverboard
- HH. Artificial Shelter
- II. Timed Search
- JJ. Feeder Survey
- KK. Christmas Bird Count
- LL. Breeding Bird Survey
- MM. Breeding Bird Atlas
- NN. Winter Bird Population Study

**Appendix 2**

**Numbers of Citations for the *Pro-Cite* Index Field**

**Appendix 2. Numbers of citations for the Pro-Cite index field**

- I. Taxon (TX) 833 citations
  - A. Amphibia 53
    - 1. Caudata 25
    - 2. Salientia 20
  - B. Reptilia 79
    - 1. Testudines 26
    - 2. Lacertilia 26
    - 3. Serpentes 31
  - C. Aves 503
    - 1. Waterfowl 75
    - 2. Shorebird 23
    - 3. Wader 32
    - 4. Upland Groundbird 86
    - 5. Raptor 82
    - 6. Owl 40
    - 7. Woodpecker 32
    - 8. Passerine 100
  - D. Mammalia 244
    - 1. Didelphimorphia 7
    - 2. Insectivora 55
    - 3. Chiroptera 18
    - 4. Carnivora 49
    - 5. Rodentia 129
      - a. Sciuridae 28
      - b. Castoridae 5
      - c. Muridae 47
      - d. Erethizontidae 0
    - 6. Lagomorpha 28
- II. Habitat (HBT) 297 citations
  - A. Cliff 4
  - B. Riparian 44
  - C. Scrub/Shrub 42
  - D. Forest 167
    - 1. Coniferous 58
    - 2. Deciduous 60
    - 3. Mixed 32
  - E. Grassland 45
  - F. Agriculture 25
  - G. Wetlands 80
  - H. Desert 9
  - I. Cave 2
- III. Season (SSN) 333 citations
  - A. Breeding 172
  - B. Winter 88
  - C. Spring 220
  - D. Summer 237
  - E. Fall 84

## **Appendix 2. (continued)**

### **IV. Level of Information (LV) 514 citations**

- A. Presence 40
- B. Abundance 106
- C. Density 141
- D. Distribution 45
- E. Population 203
- F. Nesting/Breeding Success 37
- G. Territory 6
- H. Home Range 11
- I. Community 81
- J. Habitat Use 35

### **V. Protocol (PTC) 606 citations**

- A. Transect 92
  - 1. Fixed-width 11
  - 2. Variable-width 10
  - 3. Line 28
  - 4. Strip 12
- B. Variable Circular-plot 22
- C. Point Count
  - (Fixed-area Circular-plot) 27
- D. Spot-mapping 47
- E. Communication Index 61
- F. Recording 30
  - 1. Conspecific 28
  - 2. Interspecific 2
- G. Scat/Sign Index 11
- H. Pellet Index 2
- I. Den/Dam/Lodge Index 2
- J. Tracking 17
- K. Scent Station 15
- L. Nest Count 23
- M. Roost Count 5
- N. Flush Count 3
- O. Nightlighting 12
- P. Sounding 2
- Q. Road Kill 2
- R. Road Census 40
- S. Boat Census 8
- T. Aerial Census 50
- U. Quadrat 3
- V. Photography 10
- W. Netting 56
  - 1. Mist-net 11
  - 2. Tadpole Netting 1
- X. Snaring 5
- Y. Trapping 169
  - 1. Pitfall 30
  - 2. Snap-trap 11
  - 3. Live-trap 59

**Appendix 2. (continued)**

- 4. Bat-trap 4
- 5. Funnel-trap/Aquatic Trap 9
- Z. Drift Fence 18
- AA. Removal 10
- BB. Marking 76
- CC. Banding/Tagging 36
- DD. Capture-recapture 38
- EE. Assessment Line (Grid) 6
- FF. Rock-turning/Log-turning 7
- GG. Coverboard 1
- HH. Artificial Shelter 1
- II. Timed Search 7
- JJ. Feeder Survey 1
- KK. Christmas Bird Count 7
- LL. Breeding Bird Survey 13
- MM. Breeding Bird Atlas 8
- NN. Winter Bird Population Study 8

**Appendix 3**  
**Amphibian and Reptile Protocols**

### **Appendix 3. Protocols for inventorying and monitoring amphibians and reptiles**

#### **Transect (used in association with Trapping, Rock-turning/Log-turning, Tracking, or Timed Search):**

**Citations:** Dalrymple 1988 (#2090); Ramotnik and Scott 1988 (#6600); Sullivan 1987 (#7900).

**Information:** Density

**Cost:** Medium Cost

**Labor:** Medium Labor

**Expertise:** Species identification

#### **Communication Index:**

**Citations:** unknown

**Taxa:** Amphibia (Salientia)

**Habitat:** Riparian, Forest, Wetlands

**Seasons:** Spring

**Information:** Presence

**Cost:** Low Cost

**Labor:** Low Labor

**Materials:** none

**Expertise:** Species identification with vocalizations

### **Appendix 3. (continued)**

#### **Tracking:**

**Citations:** Lillywhite 1982 (#5200); Scott and Dobie 1980 (#7260).

**Taxa:** Reptilia (terrestrial Testudines and Serpentes)

**Habitats:** unknown

**Seasons:** Spring, Summer, Fall

**Information:** Presence, Relative Abundance

**Cost:** unknown

**Labor:** unknown

**Materials:** none

**Expertise:** Species identification from tracks

#### **Nightlighting:**

**Citations:** Williams et al. 1981 (#8840).

**Taxa:** Amphibia (Caudata [Hellbender])

**Habitats:** Wetlands, Riparian

**Seasons:** Spring, Summer

**Information:** Presence

**Cost:** Low

**Labor:** Low

**Materials:** Spotlight

**Expertise:** Hellbender identification

### **Appendix 3. (continued)**

#### **Sounding:**

**Citations:** Carpenter 1955 (#1650); Medica et al. 1986 (#5700).

**Taxa:** Reptilia (Testudines)

**Habitats:** Forest

**Seasons:** All Seasons

**Information:** Presence

**Cost:** Low

**Labor:** Low

**Materials:** Aluminum rod

**Expertise:** Species identification by sound

#### **Road Census:**

**Citations:** Dalrymple 1988 (#2090); Jones 1988 (#4440); McKinstry et al. 1991 (#5680); Sullivan 1981 (#7900).

**Taxa:** Amphibia (Salientia), Reptilia (Serpentes)

**Habitats:** Riparian, Forest, Wetlands adjacent to roads

**Seasons:** Spring, Summer, Fall

**Information:** Presence, Relative Abundance

**Cost:** Low Cost

**Labor:** Low Labor

**Materials:** Car

**Expertise:** Species identification

### **Appendix 3. (continued)**

#### **Tadpole Netting:**

**Citations:** Svhla 1959 (#7990).

**Taxa:** Amphibia (Salientia with aquatic larvae)

**Habitats:** Wetlands

**Seasons:** Spring, Summer

**Information:** Presence, Relative Abundance

**Cost:** Low Cost

**Labor:** Low-medium Labor

**Materials:** Net

**Expertise:** Larvae identification

#### **Snaring:**

**Citations:** Franklin 1947 (#3070); Stickel 1944 (#7830).

**Taxa:** Reptilia (Lacertilia and aquatic Serpentes)

**Habitats:** Wetlands

**Seasons:** Spring, Summer, Fall

**Information:** Relative Abundance

**Cost:** unknown

**Labor:** unknown

**Materials:** unknown

**Expertise:** Species identification and handling

## **Appendix 3. (continued)**

### **Trapping:**

#### **1) Pitfall Trap with Drift Fence:**

**Citations:** Bury and Corn 1987 (#1450); Dodd 1991 (#2390); Gibbons and Semlitsch 1982 (#3350); Mengak and Guynn 1987 (#5740); Whitaker 1967 (#3040).

**Taxa:** Amphibia (Caudata and Salientia), Reptilia (Testudines, Lacertilia, and Serpentes)

**Habitats:** Riparian, Scrub/Shrub, Forest, Wetlands

**Seasons:** Spring, Summer, Fall

**Information:** Presence, Relative Abundance, Density, Population, Community

**Cost:** High cost

**Labor:** High labor

**Materials:** Pitfall vessels, fencing, stakes, flagging

**Expertise:** Species identification and handling

#### **2) Snap-trap:**

**Citations:** Bury and Corn 1987 (#1450); Heatwole et al. 1964 (#3880); Mengak and Guynn 1987 (#5740).

**Taxa:** Reptilia (Lacertilia and Serpentes)

**Habitats:** Riparian, Scrub/Shrub, Forest, Grassland

**Seasons:** Spring, Summer, Fall

**Information:** Relative Abundance, Density, Community

**Cost:** Medium Cost

**Labor:** Low-Medium Labor

**Materials:** Traps

**Expertise:** Reptile identification

### **Appendix 3. (continued)**

#### **Trapping cont.:**

##### **3) Live-trap/Funnel-trap:**

**Citations:** Clark 1966 (#1770); Fitch 1951 (#2970); Fitch 1992 (#2960); Hall 1967 (#3670); Heatwole et al. 1964 (#3880); Rogers 1939 (#7020).

**Taxa:** Amphibia (Caudata and Salientia), Reptilia (Testudines, Lacertilia, and Serpentes)

**Habitats:** Riparian, Shrub/Scrub, Forest, Grassland, Wetlands

**Seasons:** Spring, Summer, Fall

**Information:** Presence, Relative Abundance, Density, Distribution, Community

**Cost:** Medium Cost

**Labor:** Medium Labor

**Materials:** Live traps

**Expertise:** Species identification and handling

##### **4) Aquatic Trap/Turtle Trap:**

**Citations:** Carpenter 1953 (#1660); Feuer 1980 (#2940); Williams et al. 1981 (#8840).

**Taxa:** Reptilia (Testudines)

**Habitats:** Wetlands, Riparian

**Season:** Spring, Summer, Fall

**Information:** Relative Abundance, Community

**Cost:** unknown

**Labor:** Moderate

**Materials:** Traps

**Expertise:** Species identification

### **Appendix 3. (continued)**

#### **Marking (in association with trapping or netting):**

**Citations:** Brown and Parker 1976 (#1280); Doody and Tamplin 1992 (#2430); Heatwole 1961 (#3890); Loncke and Obbard 1977 (#5340).

**Taxa:** *Amphibia (Caudata), Reptilia (Testudines, Lacertilia, and Serpentes)*

**Information:** Relative Abundance, Density, Individual Identification

**Cost:** Medium Cost

**Labor:** Medium-high Labor

**Materials:** Toe-clip, paint, PIT

**Expertise:** Handling individuals

#### **Capture-recapture (used in association with Marking):**

**Citations:** Heckel and Roughgarden 1979 (#3900); Szaro et al. 1988 (#8040).

**Taxa:** *Reptilia (Testudines, Lacertilia, and Serpentes)*

**Habitats:** Riparian, Scrub/Shrub, Forest, Grassland

**Seasons:** Spring, Summer, Fall

**Information:** Relative Abundance, Density, Population

**Cost:** Medium-high Cost

**Labor:** High Labor

**Materials:** No new materials

**Expertise:** Handling individuals

### **Appendix 3. (continued)**

#### **Rock-turning/Log-turning:**

**Citations:** Aubrey et al. 1988 (#400); Dalrymple 1988 (#2090); Herrington 1988 (#3960); Ramotnik and Scott 1988 (#6680).

**Taxa:** Amphibia (terrestrial Caudata)

**Habitats:** Riparian, Forest, Wetlands

**Seasons:** Spring, Summer

**Information:** Relative Abundance, Community

**Cost:** Low Cost

**Labor:** Medium Labor

**Materials:** Potato Rake

**Expertise:** Salamander identification

#### **Coverboard:**

**Citations:** DeGraaf and Yamasaki 1992 (#2220).

**Taxa:** Amphibia (terrestrial Caudata)

**Habitats:** Forest

**Seasons:** Summer

**Information:** Presence, Relative Abundance, Community

**Cost:** Low

**Labor:** Moderate

**Materials:** 1 m pine boards

**Expertise:** Species identification

### **Appendix 3. (continued)**

#### **Artificial Shelter:**

**Citations:** Fitch 1992 (#2960).  
**Taxa:** Reptilia (Serpentes)  
**Habitats:** Forest, Grassland, Scrub/Shrub  
**Seasons:** Spring, Summer, Fall  
**Information:** Presence, Relative Abundance, Community  
**Cost:** Low  
**Labor:** Moderate  
**Materials:** Corrugated metal sheets  
**Expertise:** Snake identification

#### **Timed Search:**

**Citations:** Aubrey et al. 1988 (#400); Buhlmann et al. 1988 (#1320); Fitch 1992 (#2960); Jones 1988 (#4440); Szaro et al. 1988 (#8040).  
**Taxa:** Amphibia (Caudata and Salientia), Reptilia (Testudines, Lacertilia, and Serpentes)  
**Habitats:** Riparian, Scrub/Shrub, Forest, Wetlands  
**Seasons:** Spring, Summer, Fall  
**Information:** Presence, Relative Abundance, Community  
**Cost:** Low Cost  
**Labor:** Medium Labor  
**Materials:** Potato Rake  
**Expertise:** Species identification

**Appendix 4**  
**Bird Protocols**

## **Appendix 4. Protocols for inventorying and monitoring birds**

### **Transect:**

**Citations:** Conner and Dickson 1980 (#1940); Emlen 1971 (#2660); Franzreb 1981 (#3110); Hutto and Mosconi 1981 (#4190).

**Taxa:** Waterfowl, Wader, Upland Groundbird, Raptor, Owl, Woodpecker, Passerine

**Habitats:** Riparian, Scrub/Shrub, Forest, Grassland, Wetland

**Seasons:** All Seasons

**Information:** Relative Abundance, Density, Population, Community, Habitat Use

**Cost:** Medium Cost

**Labor:** Medium Labor

**Materials:** none

**Expertise:** Sight and song identification and distance estimation

### **Variable Circular-plot:**

**Citations:** Anderson and Ohmart 1981 (#190); Avery and Van Riper 1989 (#440); DeSante 1981 (#2260); Edwards et al. 1981 (#2590); Reynolds et al. 1980 (#6830).

**Taxa:** Wader, Upland Groundbird, Woodpecker, Passerine

**Habitats:** Riparian, Scrub/Shrub, Forest, Wetlands

**Seasons:** All Seasons

**Information:** Relative Abundance, Density, Community

**Cost:** Low-medium Cost

**Labor:** Medium Labor

**Materials:** unknown

**Expertise:** Sight and song identification, and distance estimation

#### **Appendix 4. (continued)**

##### **Point Count (IPA):**

**Citations:** Fuller and Langslow 1984 (#3240); Gutzwiller 1991 (#3630); Hutto et al. 1986 (#4200); International Bird Census Committee 1977 (#7030); Verner and Ritter 1986 (#8480).

**Taxa:** Waterfowl, Upland Groundbird, Raptor, Owl, Woodpecker, Passerine

**Habitats:** Scrub/Shrub, Forest, Grassland, Agriculture, Wetlands

**Seasons:** All Seasons

**Information:** Presence, Relative Abundance, Density, Population, Community

**Cost:** Low-medium Cost

**Labor:** Low-medium Labor

**Materials:** none

**Expertise:** Sight and song identification, and distance estimation

##### **Spot-mapping:**

**Citations:** Emlen 1984 (#2650); International Bird Census Committee 1970 (#4220); Landres and MacMahon 1980 (#5030); Oelke 1981 (#6090); Robbins 1970 (#6930).

**Taxa:** Waterfowl, Wader, Upland Groundbird, Raptor, Owl, Woodpecker, Passerine

**Habitats:** Riparian, Scrub/Shrub, Forest, Grassland, Agriculture, Wetlands

**Seasons:** Spring, Summer

**Information:** Relative Abundance, Density, Population, Territory, Community

**Cost:** High Cost

**Labor:** High Labor

**Materials:** Map of area

**Expertise:** Sight and song identification

## **Appendix 4. (continued)**

### **Communication Index:**

**Citations:** Bart et al. 1984 (#650); Bell 1964 (#750); DeMaso et al. 1992 (#2240); Mayfield 1981 (#5560).

**Taxa:** Shorebird, Wader, Upland Groundbird, Owl, Woodpecker, Passerine

**Habitats:** Riparian, Scrub/Shrub, Forest, Grassland, Agriculture, Wetlands

**Seasons:** All Seasons

**Information:** Presence, Relative Abundance, Density, Distribution, Population

**Cost:** Low Cost

**Labor:** Low Labor

**Materials:** none

**Expertise:** Song and sound identification

### **Conspecific Recording:**

**Citations:** Balding and Dibble 1984 (#560); Down 1990 (#2460); Glahn 1974 (#3420); Levy et al. 1966 (#5160); Rosenfeld et al. 1985 (#7050).

**Taxa:** Wader, Upland Groundbird, Raptor, Owl, Woodpecker, Passerine

**Habitats:** Riparian, Scrub/Shrub, Forest, Grassland, Wetlands, Agriculture

**Seasons:** Spring, Summer, Fall

**Information:** Presence, Relative Abundance, Distribution, Density, Population

**Cost:** Low-medium Cost

**Labor:** Low-medium Labor

**Materials:** Transect (for density), Recorder and Amplifier

**Expertise:** Sight and song identification

#### **Appendix 4. (continued)**

##### **Interspecific Recording:**

**Citations:** Johnson and Dinsmore 1986 (#4390); Kimmel and Yahner 1990 (#4720).

**Taxa:** Wader, Raptor

**Habitats:** Riparian, Shrub/Scrub, Forest, Grassland, Agriculture, Wetlands

**Seasons:** Spring, Summer

**Information:** Presence, Relative Abundance, Density

**Cost:** Low-medium Cost

**Labor:** Low-medium Labor

**Materials:** Transect (for density), Recorder and Amplifier

**Expertise:** Sight and song identification

##### **Scat/Sign Index:**

**Citations:** Bull 1981 (#1350); Gullion 1960 (#3610); Williams 1959 (#8830).

**Taxa:** Upland Groundbird, Woodpecker

**Habitats:** Forest

**Seasons:** Spring

**Information:** Presence, Relative Abundance

**Cost:** Low Cost

**Labor:** Low Labor

**Materials:** none

**Expertise:** Scat and Sign identification

## **Appendix 4. (continued)**

### **Pellet Index:**

**Citations:** Bull 1981 (#1350).  
**Taxa:** Raptor, Owl  
**Habitats:** Riparian, Forest  
**Seasons:** All Seasons  
**Information:** Presence, Relative Abundance  
**Cost:** Low Cost  
**Labor:** Low Labor  
**Materials:** none  
**Expertise:** Pellet identification

### **Tracking:**

**Citations:** Bull 1981 (#1350).  
**Taxa:** Upland Groundbird  
**Habitats:** unknown  
**Seasons:** Winter  
**Information:** Presence  
**Cost:** Low Cost  
**Labor:** Low Labor  
**Materials:** none  
**Expertise:** Track identification

#### **Appendix 4. (continued)**

##### **Nest Count:**

**Citations:** Fasola et al 1985 (#2890); Ferns and Mudge 1981 (#2910); Gloutney et al. 1993 (#3430); Steenhof and Kochert 1982 (#7780).

**Taxa:** Waterfowl, Shorebird, Upland Groundbird, Raptor, Woodpecker, Passerine

**Habitats:** Forest, Grassland, Agriculture, Wetlands

**Seasons:** Spring, Summer, Winter

**Information:** Density, Nesting Success, Habitat Use

**Cost:** Medium Cost for colonial nesting Shorebirds, High Cost (time) otherwise

**Labor:** High Labor

**Materials:** none

**Expertise:** Locating and identifying nests, and species identification

##### **Roost Count:**

**Citations:** Bull 1981 (#1350); Hein and Haugen 1966 (#3910); Parr and Scott 1978 (#6260); Tabberer 1971 (#8090).

**Taxa:** Waterfowl (Wood Duck), Upland Groundbird (Turkey), Owl, Passerine (Crows, European Starling, Blackbirds, Grackles, Brown-headed Cowbird)

**Habitats:** Forest, Agriculture, Wetlands

**Seasons:** Fall

**Information:** Relative Abundance, Population

**Cost:** Low-medium Cost

**Labor:** Low Labor

**Materials:** none

**Expertise:** unknown

#### **Appendix 4. (continued)**

##### **Flush Count:**

**Citations:** Dorney et al. 1958 (#2440); Gartshore et al. 1982 (#3270); Rumble and Flake 1982 (#7080).

**Taxa:** Waterfowl, Upland Groundbird, Passerine (Red-winged Blackbird)

**Habitats:** Forest, Agriculture, Wetlands

**Seasons:** All Seasons

**Information:** Presence, Population, Nesting Success, Habitat Use

**Cost:** Low Cost

**Labor:** Low Labor

**Materials:** none

**Expertise:** Sight identification

##### **Nightlighting:**

**Citations:** Bishop and Barrat 1969 (#830); Labisky 1968 (#4960); Minser and Cole 1991 (#5800); Wakkinen et al. 1992 (#8570).

**Taxa:** Waterfowl, Shorebird, Wader, Upland Groundbird

**Habitat:** Riparian, Shrub/Scrub, Forest, Grassland, Wetlands

**Seasons:** Spring, Summer, Fall

**Information:** Presence, Relative Abundance, Population, Nesting Success

**Cost:** Low Cost

**Labor:** Low Labor

**Materials:** Spotlight

**Expertise:** Sight identification

#### **Appendix 4. (continued)**

##### **Road Census:**

**Citations:** Diem and Lu 1960 (#2370); Hewitt 1967 (#4010); Petraborg et al. 1953 (#6380); Saunder et al. 1971 (#7170).

**Taxa:** Waterfowl, Upland Groundbird, Raptor, Owl, Passerine (Red-winged Blackbird, Shrikes)

**Habitat:** Riparian, Shrub/Scrub, Forest, Grassland, Agriculture, and Wetlands adjacent to roads

**Seasons:** All Seasons

**Information:** Presence, Relative Abundance, Density, Population

**Cost:** Low Cost

**Labor:** Low Labor

**Materials:** Car, map, secondary roads, preferably

**Expertise:** Sight and song identification

##### **Boat Census:**

**Citations:** Eggeman and Johnson 1989 (#2610); Fuller and Mosher 1981 (#3220); Gerrard et al. 1990 (#3330); Steenhof and Kochert 1982 (#7780).

**Taxa:** Waterfowl, Shorebird, Wader, Raptor

**Habitats:** Riparian, Wetland

**Seasons:** Winter, Spring, Summer

**Information:** Presence, Relative Abundance, Population, Nesting Success

**Cost:** Medium-high Cost

**Labor:** Medium Labor

**Materials:** Boat

**Expertise:** Sight identification

#### **Appendix 4. (continued)**

##### **Aerial Census (can be used with Photography):**

**Citations:** Brown and Nassar 1991 (#1270); Eggeman and Johnson 1989 (#2610); Haramis et al. 1985 (#3750); Kushlan 1979 (#1220); Stancill and Leslie 1990 (#7720).

**Taxa:** Waterfowl, Shorebird, Raptor

**Habitats:** Riparian, Forest, Agriculture, Wetlands

**Seasons:** All Seasons

**Information:** Presence, Relative Abundance, Distribution, Density, Population, Nesting Success, Habitat Use

**Cost:** Extremely High Cost

**Labor:** Extremely High Labor

**Materials:** Plane, experienced pilot

**Expertise:** Sight identification, nest identification, number estimation

##### **Netting (Mist-net):**

**Citations:** Best 1990 (#780); Conner et al. 1983 (#1930); Karr 1981 (#4520); Keyes and Grue 1982 (#4670); Myers and Pardieck 1993 (#5760).

**Taxa:** Waterfowl, Shorebird, Upland Groundbird, Raptor, Woodpecker, Passerine

**Habitats:** Riparian, Shrub/Scrub, Forest, Grassland, Wetlands

**Seasons:** Spring, Summer, Fall

**Information:** Relative Abundance, Population, Community

**Cost:** Medium-High Cost

**Labor:** High Labor

**Materials:** Mist nets, poles, stakes

**Expertise:** Sight identification, bird handling and measurement

#### **Appendix 4. (continued)**

##### **Trapping (Nestbox-trap, Bal-chatri Trap):**

**Citations:** Anderson and Hamerstrom 1967 (#260); Dunk 1991 (#2510); Plumpton and Lutz 1992 (#6450); Yosef and Lohrer 1992 (#9000).

**Taxa:** Waterfowl, Upland Groundbird, Raptor, Owl, Passerine (Shrikes and box-nesters)

**Habitats:** Forest, Grassland, Agriculture, Wetlands

**Seasons:** Spring, Summer, Winter

**Information:** Presence, Density, Population

**Cost:** High Cost

**Labor:** High Labor

**Materials:** unknown

**Expertise:** Sight identification and bird handling

##### **Banding (in association with Netting or Trapping):**

**Citations:** Hestbeck and Malecki 1989 (#3970); Plumpton and Lutz 1992 (#6450); Sulzbach and Locke 1978 (#7920); Weis et al. 1991 (#8690).

**Taxa:** Waterfowl, Shorebird, Upland Groundbird, Raptor, Owl, Passerine

**Habitats:** Riparian, Shrub/Scrub, Forest, Grassland, Agriculture, Wetlands

**Seasons:** All Seasons

**Information:** Density and Individual Identification

**Cost:** High Cost

**Labor:** High Labor

**Materials:** Leg bands, pliers, measurement tools

**Expertise:** Sight identification, bird handling and measurement

**Appendix 4. (continued)**

**Capture-recapture (used in conjunction with Banding):**

**Citations:** Ferry et al. 1981 (#2930); Hestbeck and Malecki 1989 (#3970); Jolly 1981 (#4420); Nichols et al. 1981 (#5980).

**Information:** Density, Territory, Home Range

**Cost:** High Cost

**Labor:** High Labor

**Expertise:** Bird handling and measurement

**Feeder Survey:**

**Citations:** Westphal 1992 (#8750).

**Taxa:** Woodpecker, Passerine (seed- and suet-eating)

**Habitats:** Forest, Agriculture

**Seasons:** All Seasons

**Information:** Presence, Relative Abundance, Population, Community

**Cost:** Low Cost

**Labor:** Low Labor

**Materials:** Birdfeeder, seed, suet

**Expertise:** Sight and song identification

## **Appendix 4. (continued)**

### **Christmas Bird Count:**

**Citations:** Bock and Leptien 1975 (#960); Burtt and Burtt 1982 (#1430); Drennan 1981 (#2480).

**Taxa:** Waterfowl, Shorebird, Wader, Upland Groundbird, Raptor, Owl, Woodpecker, Passerine

**Habitats:** Riparian, Scrub/Shrub, Forest, Grassland, Agriculture, Wetlands

**Seasons:** Winter

**Information:** Presence, Relative Abundance, Community

**Cost:** Low Cost

**Labor:** Low Labor

**Materials:** Data can be obtained for each bird count from Issue #4 of each volume of the American Birds magazine.

**Expertise:** none

### **Breeding Bird Survey:**

**Citations:** Bart and Klosiewski 1989 (#630); Bock and Bystrak and Robbins 1978 (#1510); Faanes and Bystrak 1981 (#2840).

**Taxa:** Waterfowl, Shorebird, Wader, Upland Groundbird, Raptor, Owl, Woodpecker, Passerine

**Habitats:** Riparian, Scrub/Shrub, Forest, Grassland, Agriculture, Wetlands

**Seasons:** Summer

**Information:** Presence, Relative Abundance, Community

**Cost:** Low Cost

**Labor:** Low Labor

**Materials:** Data can be obtained from Bruce Peterjohn at the USFWS, Office of Migratory Bird Management in Laurel, Maryland

**Expertise:** none

#### **Appendix 4. (continued)**

##### **Breeding Bird Atlas:**

**Citations:** Raynor 1983 (#6700); Robbins et al. 1989 (#6960); Smith 1990 (#7550).

**Taxa:** Waterfowl, Shorebird, Wader, Upland Groundbird, Raptor, Owl, Woodpecker, Passerine

**Habitats:** Riparian, Scrub/Shrub, Forest, Grassland, Agriculture, Wetlands

**Seasons:** Summer

**Information:** Presence, Relative Abundance, Community

**Cost:** Low Cost

**Labor:** Low Labor

**Materials:** Data may be obtained from Dan Brauning at the Penn. Game Commission in Harrisburg, PA

**Expertise:** none

##### **Winter Bird Population Study:**

**Citations:** Brewer 1972 (#1160); Engstrom and James 1981 (#2730); Robbins 1981 (#6940); Robbins 1970 (#6950); Smith 1984 (#7600).

**Taxa:** Waterfowl, Shorebird, Wader, Upland Groundbird, Raptor, Owl, Woodpecker, Passerine

**Habitats:** Forest, Grassland

**Seasons:** Winter

**Information:** Density, Population, Community

**Cost:** Low Cost

**Labor:** Low Labor

**Materials:** none

**Expertise:** none

**Appendix 5**  
**Mammal Protocols**

## Appendix 5. Protocols for inventorying and monitoring mammals

### Transect:

**Citations:** Healy and Welsh 1992 (#3870); Krebs et al. 1987 (#4870).

**Taxa:** Carnivora, Rodentia (Sciuridae), Lagomorpha

**Habitats:** Forest, Grassland

**Seasons:** All Seasons

**Information:** Relative Abundance, Density, Population

**Cost:** Medium Cost

**Labor:** Medium Labor

**Materials:** unknown

**Expertise:** unknown

### Communication Index (possibly with Conspecific Recording):

**Citations:** Bouffard and Hein 1978 (#1060); Kunz and Brock 1975 (#4920); Lishak 1977 (#5300); Okoniewski et al. 1984 (#6120); Paige et al 1985 (#6190).

**Taxa:** Chiroptera, Carnivora, Rodentia (Sciuridae)

**Habitats:** Riparian, Forest, Grassland

**Seasons:** Spring, Summer, Fall

**Information:** Presence, Relative Abundance, Population, Breeding Success

**Cost:** Low Cost

**Labor:** Low Labor

**Materials:** Recorder and amplifier, Ultrasonic detector for Chiroptera

**Expertise:** Species identification from vocalizations

## **Appendix 5. (continued)**

### **Scat/Sign Index:**

**Citations:** Adams 1959 (#40); Andelt and Andelt 1984 (#180); Krebs et al. 1987 (#4870); Litvaitis et al. 1985 (#5320); Scott and Selko 1939 (#7320).

**Taxa:** Carnivora, Rodentia, Lagomorpha

**Habitat:** Forest, Grassland

**Seasons:** All Seasons

**Information:** Relative Abundance, Density, Population, Habitat Use

**Cost:** Low Cost

**Labor:** Low-medium labor

**Materials:** unknown

**Expertise:** Scat and Sign identification

### **Den/Lodge/Dam Index (may be used with Aerial Census):**

**Citations:** Sargeant 1975 (#7150); Scott and Selko 1939 (#7320); Village and Myhill 1990 (#8500).

**Taxa:** Carnivora, Rodentia (Castoridae, Muridae [Muskrat])

**Habitats:** Grassland, Agriculture, Wetlands

**Seasons:** All seasons

**Information:** Presence, Relative Abundance, Density

**Cost:** Low Cost

**Labor:** Low Labor

**Materials:** none

**Expertise:** Den, Lodge, and Dam location and identification

## **Appendix 5. (continued)**

### **Tracking (including Sooted Aluminum Track Station):**

**Citations:** Barrett 1983 (#610); Boonstra et al. 1992 (#1020); Carey and Witt 1991 (#1620); Stanley and Bart 1991 (#7740).

**Taxa:** *Didelphimorphia, Carnivora, Rodentia (Sciuridae, Muridae), Lagomorpha*

**Habitats:** Shrub/Scrub, Forest, Grassland, Agriculture

**Seasons:** All Seasons

**Information:** Presence, Relative Abundance, Density, Distribution, Community, Habitat Use

**Cost:** Low Cost (Medium for Sooted Aluminum Track Stations)

**Labor:** Low Labor (Medium for Sooted Aluminum Track Stations)

**Materials:** unknown

**Expertise:** Track identification

### **Scent Station:**

**Citations:** Clark and Campbell 1983 (#1800); Conner et al. 1983 (#1920); Linhart and Knowlton 1975 (#5250); Roughton and Sweeney 1982 (#7070).

**Taxa:** *Didelphimorphia, Carnivora, Lagomorpha*

**Habitats:** Forest, Agriculture, Wetlands

**Seasons:** All Seasons

**Information:** Presence, Relative Abundance, Population

**Cost:** Medium Cost

**Labor:** Medium-high Labor

**Materials:** unknown

**Expertise:** Track and hair identification

## **Appendix 5. (continued)**

### **Nightlighting:**

**Citations:** Flinders and Hansen 1973 (#2990); Labisky 1959 (#4950); Labisky 1968 (#4960); Stahl and Migot 1990 (#7710).

**Taxa:** Didelphimorphia, Carnivora, Rodentia (Muridae [Muskrat]), Lagomorpha

**Habitats:** Grassland, Wetlands

**Seasons:** All Seasons

**Information:** Relative Abundance, Density, Distribution

**Cost:** Low Cost

**Labor:** Low-medium Labor

**Materials:** Spotlight

**Expertise:** Species identification

### **Road Kill:**

**Citations:** Case 1978 (#1690).

**Taxa:** Didelphimorphia, Carnivora, Sciuridae

**Habitats:** All habitats adjacent to roads

**Seasons:** All seasons

**Information:** Presence, Relative Abundance, Population

**Cost:** Low Cost

**Labor:** Low Labor

**Materials:** Car, map

**Expertise:** Species identification

## **Appendix 5. (continued)**

### **Road Census:**

**Citations:** Flinders and Hansen 1973 (#2990); Newman 1959 (#5960); Rajala 1983 (#6580); Stanley and Bart 1991 (#7740).

**Taxa:** Carnivora, Lagomorpha

**Habitats:** Scrub/Shrub, Forest, Grassland, Agriculture (habitats adjacent to roads)

**Seasons:** Winter

**Information:** Presence, Relative Abundance, Density, Distribution

**Cost:** Low Cost

**Labor:** Low Labor

**Materials:** Car, map, secondary roads

**Expertise:** Species identification

### **Aerial Census (can be used with Photography):**

**Citations:** Becker 1991 (#710); Boschart et al. 1989 (#1210); Sargeant et al. 1975 (#7150).

**Taxa:** Carnivora, Rodentia (Castoridae)

**Habitats:** Scrub/Shrub, Forest, Grassland, Agriculture, Wetlands

**Seasons:** Winter, Spring, Summer

**Information:** Relative Abundance, Density

**Cost:** Extremely High Cost

**Labor:** Extremely High Labor

**Materials:** Plane/Helicopter

**Expertise:** Spotting/identifying animals

## **Appendix 5. (continued)**

### **Netting:**

**Citations:** Constantine 1958 (#1960); Kunz and Brock 1975 (#4920); Saugey et al. 1988 (#7190); Tideman and Woodside 1978 (#8250).

**Taxa:** Chiroptera

**Habitats:** Riparian, Forest (caves)

**Seasons:** Spring, Summer, Fall

**Information:** Presence, Relative Abundance, Distribution

**Cost:** Medium-high Cost

**Labor:** Medium-high Labor

**Materials:** Netting, Poles, Measurement tools

**Expertise:** Species identification, handling and measurement of bats

### **Snaring:**

**Citations:** Kieth 1965 (#4560); Lishak 1976 (#5290).

**Taxa:** Sciuridae, Lagomorpha

**Habitats:** Shrub/Scrub, Grassland

**Seasons:** Winter, Summer

**Information:** Density, Individual identification when used with Marking/Banding

**Cost:** unknown

**Labor:** unknown

**Materials:** unknown

**Expertise:** Species identification and handling

## **Appendix 5. (continued)**

### **Trapping:**

#### **1) Pitfall Trap (can be used with Drift Fence):**

**Citations:** Boonstra and Krebs 1978 (#1030); Gibbons and Semlitsch 1982 (#3350); Howard and Brock 1961 (#4120); Walters 1989 (#8590).

**Taxa:** Insectivora, Rodentia (Muridae)

**Habitats:** Scrub/Shrub, Forest, Grassland, Agriculture

**Seasons:** All Seasons

**Information:** Presence, Relative Abundance, Density, Distribution, Community

**Cost:** Medium Cost

**Labor:** Medium-high Labor

**Materials:** 1 gallon cans, posthole digger, metal or plastic Drift Fence, stakes

**Expertise:** Species identification and handling

#### **2) Snap-trap:**

**Citations:** Galindo-Leal 1990 (#3260); Mengak and Guynn 1987 (#5740); Stenseth and Hannson 1979 (#7800); Taulman et al. 1992 (#8170).

**Taxa:** Insectivora, Rodentia (Muridae)

**Habitats:** Scrub/Shrub, Forest, Grassland, Agriculture

**Seasons:** All Seasons

**Information:** Relative Abundance, Density, Distribution, Population

**Cost:** Low-medium Cost

**Labor:** Low-medium Labor

**Materials:** Snap-traps

**Expertise:** Species identification

## **Appendix 5. (continued)**

### **Trapping cont.:**

#### **3) Live-trap:**

**Citations:** Cushwa and Burnham 1974 (#2060); Nixon et al. 1967 (#6010); Lacki et al. 1990 (#5000); Slade et al. 1993 (#7510).

**Taxa:** Didelphimorphia, Insectivora, Carnivora (raccoons, weasels), Rodentia (Sciuridae, Muridae), Lagomorpha

**Habitats:** Riparian, Scrub/Shrub, Forest, Grassland, Agriculture, Wetlands

**Seasons:** All Seasons

**Information:** Relative Abundance, Density, Distribution, Population

**Cost:** Low-medium Cost

**Labor:** Medium Labor

**Materials:** Sherman Live Traps (Insectivora, Muridae) or Tomahawk Live Traps (Sciuridae, Carnivora)

**Expertise:** Species identification and handling

#### **4) Bat-trap:**

**Citations:** Constantine 1958 (#1960); Kunz and Anthony 1977 (#4910); Tideman and Woodside 1978 (#8250); Tuttle 1974 (#8360).

**Taxa:** Chiroptera

**Habitats:** Cave

**Seasons:** Spring, Summer

**Information:** Presence, Relative Abundance, Density, Population

**Cost:** unknown

**Labor:** unknown

**Materials:** Bat-traps

**Expertise:** Species identification and handling

## **Appendix 5. (continued)**

### **Marking/Banding (in association with Trapping or Netting):**

**Citations:** Balasingh et al. 1992 (#550); Hallet et al. 1991 (#3680); Sanderson 1961 (#7140); Schooley et al. 1993 (7240).

**Taxa:** Didelphimorphia, Insectivora, Chiroptera, Carnivora, Rodentia (Sciuridae, Muridae)

**Habitats:** Scrub/Shrub, Forest, Grassland, Agriculture

**Seasons:** All Seasons

**Information:** Density, Population, Individual Identification

**Cost:** Medium-high Cost

**Labor:** Medium-high Labor

**Materials:** Bands/ear tags, pliers, measuring equipment

**Expertise:** Handling individuals

### **Capture-recapture or Removal (in association with Trapping, Netting, and Marking/Banding):**

**Citations:** Hayne 1949 (#3850); Hilborne et al. 1976 (#4060).

**Taxa:** Chiroptera, Rodentia (Muridae)

**Habitats:** Riparian, Forest, Grassland, Agriculture, Wetlands

**Seasons:** All Seasons

**Information:** Density, Population

**Cost:** Medium-high Cost

**Labor:** Medium-high Labor

**Materials:** No additional materials

**Expertise:** Handling individuals

**Appendix 5. (continued)**

**Assessment Line (with Grid):**

**Citations:** Kaufman et al. 1971 (#4530); Kennedy et al. 1986 (#4610); O'Farrell et al. 1977 (#6070); Smith et al. 1971 (#7590).

**Taxa:** Insectivora, Carnivora (Raccoon), Rodentia (Muridae except Muskrat)

**Habitat:** Scrub/Shrub, Forest

**Seasons:** Summer

**Information:** Relative Abundance, Density, Population

**Cost:** unknown

**Labor:** unknown

**Materials:** unknown

**Expertise:** unknown